

FLIGHT

The
AIRCRAFT ENGINEER
AND AIRSHIPS

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EDITORIAL COMMENT



WE publish on another page an article by the well-known Australian pilot, Mr. Lee Murray, who is now living in London and has entered into partnership with Mr. Shackleton as aeronautical engineers and consultants. His article explains the critical and interesting position at which air transport in Australia has now arrived. To his explanation we may add some comments of our own.

The history of civil air transport in Australia is an illustration of the dictum that, in its present stage of development, the aeroplane does its greatest service when flying between places which have no other, or no other good, means of communication; while it is scarcely able to hold its own when operating in districts already served by adequate railways. This maxim may not always hold good, but at present it seems to provide a sound working rule.

The great work in Australia has been carried out by West Australian Airways, Ltd. (whose managing director is Major Norman Brearley) and by the Queensland and Northern Territories Air Services, Ltd. (known as Qantas), whose managing director is Mr. Hudson Fysh. Both of these firms started by running subsidised services into the "out back," and conferred notable benefits on the farmers in these isolated tracts by bringing them into touch with civilisation. The airways have been intensely popular with the districts served, and they have been run on such sound lines that it has been possible to reduce subsidies with each renewal of contract, while the companies still made profits.

A few years ago Sir Charles Kingsford Smith and Mr. C. T. P. Ulm started Australian National Airways, Ltd., and ran an unsubsidised service between Brisbane and Sydney. There is a railway between these two cities, but it is not a popular one, and A.N.A. speedily showed a profit. Then, unfortunately for themselves it would seem, they extended from Sydney to Melbourne, and later from Melbourne to Tasmania. Between Sydney and Melbourne the rail service remained more popular

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

- Oct. 6. "Air Navigation" Lecture by Captain N. Macmillan, M.C., A.F.C., A.F.R.Ae.S., before R.Ae.S.
- Oct. 8. Heston Charter Day Air Pageant.
- Oct. 8-9. Chatham Air Display.
- Oct. 15. Cardiff Air Display and Race from Heston.
- Oct. 18. Aero Golfing Society: Cillon Challenge Cup, West Hill G.C.
- Oct. 19. "Progress in Civil Aviation." Lecture by Lt.-Col. F. C. Sheldermine, before R.U.S.I.
- Oct. 20. "Flying Conditions on the West Coast of Africa." Lecture by Flight-Lieut. W. G. Pudney, before R.Ae.S.
- Oct. 23. Close of Berlin Sporting Flying Exhibition.
- Oct. 27. "Aeroplane Covers and Wheels." Lecture by Mr. F. Fellowes, before R.Ae.S. (Joint Meeting with Inst. of Rubber Industry.)
- Nov. 3. "Civil Primary Training." Lecture by Mr. H. G. Travers, D.S.C., before R.Ae.S.
- Nov. 10. "Airscrew Design." Lecture by Mr. D. L. Hollis Williams, B.Sc., A.F.R.Ae.S., before R.Ae.S.
- Nov. 18-Dec. 4. Paris Aero Show.
- Nov. 24. "The Evolution of Aircraft Wireless Equipment." Lecture by Sqdn.-Ldr. H. Leedham, O.B.E., R.A.F., before R.Ae.S.
- Nov. 25. Norfolk and Norwich Ae.C. Annual Ball.
- Dec. 1. "The Behaviour of Fluids in Turbulent Motion." Lecture by Mr. A. Fage, A.R.C.Sc., F.R.Ae.S., before R.Ae.S.
- Dec. 8. "Air Survey." Lecture by Lieut. J. S. A. Salt, R.E., before R.Ae.S.
- Dec. 14. "Air Power and Disarmament." Lecture by Group Capt. J. T. Babington before R.U.S.I.
- Dec. 15. "Airship Development Abroad." Lecture by Sqdn.-Ldr. R. S. Booth, before R.Ae.S.
- Dec. 15. "Lessons of the D.O.X." Lecture by Dr. C. Dornier, before R.Ae.S.

than the airway was able to become, and the fortunes of the firm began to decline. The Melbourne-Tasmania route holds out good prospects, and will undoubtedly be a source of profit some day, but A.N.A. soon found that it was impossible for them to carry on their whole undertaking without a subsidy. This was not forthcoming, and so the firm ceased operations. It retains the credit which it won on the Brisbane-Sydney service.

Another old firm is the Larkin Aircraft Supply Co., Ltd. In the dim and distant past Capt. Larkin obtained from the Commonwealth Government of the day a contract for two services which it was proposed to work with Handasyde monoplanes. These services never materialised. Later the firm was granted a contract for services between Adelaide and Cootamundra, with branch lines from Hay to Melbourne and from Mildura to Broken Hill. These ran for the period of the contract with technical success, but did not attract enough traffic, and the contract was not renewed. It appeared that the airway did not offer sufficient attractions to draw passengers and freight from the numerous good railways which cover the south-eastern corner of Australia.

One curious incident should be recorded. It was decided to extend the Queensland route from Camooweal to the head of the railway which is being built south from Darwin. It was generally expected that the contract would be given to Qantas, who had done all the work in that region and had great experience of conditions and costs. To the surprise of everyone, this contract was given to the Larkin firm, to run from Camooweal to Birdum. The company's headquarters are in Melbourne, and this contract meant operating very far from its base and in country quite new to the firm. Before the new airway got to work, the railway construction was stopped at a point 50 miles north of Birdum. It was suggested to the Larkin firm that they should fly on these extra 50 miles at the same rate of subsidy per mile. The firm refused to do that except on certain conditions which were not accepted; and so, to bridge the 50 miles gap, the Government sent up two "Wapitis" of the Royal Australian Air Force to carry on the mails to the rail head. Passengers have to go by car, when the roads are passable.

Another recent airway is the Perth-Adelaide route, the contract for which was given to West Australia Airways. It saves four days one way and three days the other way on the train service, but enters directly into competition with the State Railway. The airway has been very well run, and is popular with passengers, but in the recent hard times the question has been asked whether it is worth the money spent on it. This question will gain more force if and when mails are brought by air from Great Britain to Darwin or Wyndham in the North.

The financial stringency in Australia has led to searching inquiries into the question of air mail subsidies, and the Auditor General, having examined the statistics, was able to point out some apparently astounding results. That can usually be done when statistics are examined. He stated, for example, that in some cases it cost £7 to carry a pound of mail along the Qantas route. These figures overlooked the fact that Qantas exists to do many tasks besides carry mails, and that if the service were to close

down for lack of Government support, the districts served would feel this to be a very great hardship. There are times when it is the duty of a Government to pay for communications in isolated districts.

However, the general desire for a direct air link with Great Britain caused the operating companies in Australia to take thought among themselves, and at the same time the Government set up an official inquiry into national air policy. Then the split between the two sets of air interests became more obvious than it had been before. Three of the flying concerns, West Australia Airways, Qantas, and A.N.A., formulated a combined plan for setting up a service from one of the northern ports as far as Calcutta, and there meeting the machines of Imperial Airways. Details of this scheme have not yet reached this country. Certainly the Perth-Adelaide service would be eliminated, but it must be presumed that the old routes from Wyndham to Perth and from Camooweal to Brisbane would be retained, and probably A.N.A. would revive their service from Brisbane southwards to Sydney and perhaps to Melbourne and Tasmania. When carrying mails from England, such services would certainly deserve a subsidy. What would happen to the little Larkin service north from Camooweal does not appear, but it seems that the new combine would have a right to claim a through route from Darwin to the south, as soon as the existing contract expired. Now the Royal Dutch Air Lines have come on the scene, and have offered to extend their route from Java to Australia without subsidy but on certain terms for the present, while offering to withdraw when Imperial Airways were ready to fly right through to Australia. The Australian authorities have replied that they cannot consider this offer until the official inquiry has been finished.

In June Capt. Larkin and his associates and some others began to bestir themselves, and summoned an Air Convention to decide on a policy to lay before the Government. The sequel is made clear in Mr. Lee Murray's article. The other interests, including the three operating firms mentioned above, the leading five clubs, and some others, speedily withdrew from the Convention, and formed an Association of Australian flying interests, which is certainly much more representative of the general opinion in the flying world of Australia. The reply of the Convention was to send out papers with the object of getting a "referendum." We published the referendum paper in our issue of September 16.

We agree with Mr. Lee Murray that the method of testing opinion by ballot would not be a useful way of obtaining the opinion of those whose opinions are of most value. On the other hand, the considered opinions of the Association will most certainly carry weight, and, though the Government is bound for the present by the need for economy, these recommendations cannot lightly be disregarded. The only pity is that such an Association was not formed before in Australia; but, as Mr. Lee Murray points out, the Convention did good work in bringing the Association into being.

Australia should, therefore, have a considered policy ready by the time Imperial Airways are flying to Calcutta. Who is going to subsidise that firm for flying across India does not yet appear.



WHERE VERY COMPLETE INSTRUCTION IS GIVEN : An aerial view of the Hamble (Southampton) aerodrome of A.S.T. The courses given include instrument flying and seaplane training. The two machines on the flanks of the formation are seaplanes. (FLIGHT Photo.)

The New Dornier "Libelle"

ONE of the first small flying boats to be produced was the "Libelle" (Dragonfly), designed and built by the Dornier Company, of Friedrichshafen, on Lake Constance. That machine never attained any real popularity, although a few specimens did quite good work. The reason probably was that it was rather "before its time."

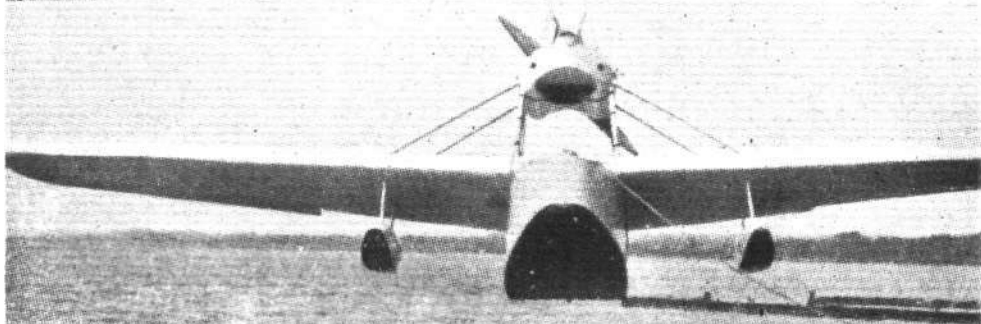
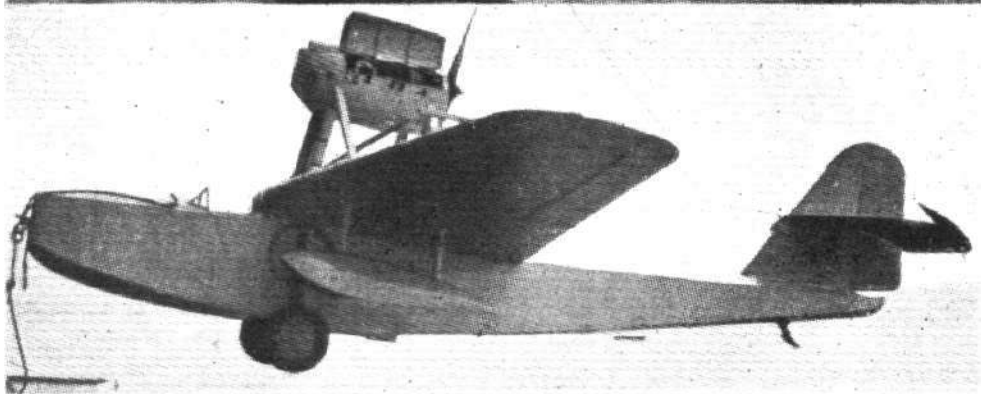
Dr. Dornier has recently brought out a modern version of the "Libelle," which we show in the set of photographs on this page. The new "Libelle" is, it will be seen, a "pusher," which, in itself, is a great improvement on the original machine, in which the propeller tips passed uncomfortably close in front of the pilot's face. Furthermore, the new "Libelle" is an amphibian, which is, perhaps, an even greater improvement, the more so as the undercarriage is not merely retractable in the sense of being capable of being lifted clear of the water, but is retractable in the sense of disappearing into the structure and offering no extra head resistance when folded. The extra weight of a retractable undercarriage for amphibians is inescapable, but at least Dr. Dornier has followed the logical course of ensuring that parasite drag shall not be added.

The photographs show that the machine is, with undercarriage raised, a very "clean" design, and this fact should help a good deal to make up for the extra weight entailed by the undercarriage. The hull is, it will be observed, of the flat-bottomed type, a type which has never found much favour with British designers, but which has the advantage, firstly, of cheap construction and, secondly, of facilitating the take-off. Dr. Dornier probably reasons that a flying boat of this size cannot in any case be expected to be really seaworthy, and that therefore the vee bottom, which acts as a very good landing shock absorber, is not essential. Certainly there are advantages as well as drawbacks in the flat-bottom hull. For example, if, when the machine is beached or standing about in a shed, it is desired to relieve the undercarriage of the load, and also to reduce overall height, either for garaging or for working on the engine, etc., the machine will be stable when standing on its step, and will require no propping up.

The hull of the "Libelle" is of duralumin construction, and is divided into five watertight compartments. In the forward part of the cabin there are two seats side by side. Both occupants are equipped with controls, but if dual control is not wanted, one set can be easily removed. Entrance to the cabin is from the forward deck, through a hinged door for each seat. Behind the cabin proper is a seat for a third occupant. This is reached through a trap door in the wing, and is provided with a folding wind screen.

The monoplane wing is of the semi-cantilever type, with spars and ribs of drawn duralumin strip. The nose portion of the wing is covered with sheet duralumin, the rest of the wing with doped fabric.

The tail organs have spars of welded steel tube and ribs of duralumin. The covering is fabric. A trimming gear is provided for the tailplane.



THE NEW "LIBELLE" : In the upper photograph, showing the machine at rest on the water, the port wheel of the undercarriage can be seen retracted into the side of the hull. The middle photograph shows the machine being hoisted into the water, with the wheels lowered. In the lower picture one obtains a good idea of the absence of extra drag when the undercarriage is raised.

By having the engine mounted on struts above the wing, the use of different power plants to suit customers' requirements becomes an easy matter. The actual machine illustrated has an Argus As.10, but such engines as the Napier E.97 or the Armstrong-Siddeley "Lynx" can also be fitted. The Argus engine is rated at 220 b.h.p., which power is developed at 2,100 r.p.m. It is of the direct-drive type, and drives a pusher airscrew. The cowling is stated to be so arranged that cooling is satisfactory not only during flight, but also when the machine is taxied for prolonged periods on the water. Some idea of how this is accomplished can be gathered from photograph No. 4 on the next page.

The fuel is carried in two wing tanks, one on each side. Each tank has a capacity of 100 litres (22 gallons), and the mounting is such that the tanks can easily be removed through the top covering of the wing. An oil tank of 14 litres (3 gallons) capacity is mounted in the engine housing. Petrol is supplied to the engine by two petrol pumps of the diaphragm type.

No performance figures are available at present, but the new Dornier "Libelle" has a tare weight of 811 kg. (1,780 lb.) and a disposable load of 389 kg. (855 lb.), giving a gross weight of 1,200 kg. (2,635 lb.). The overall length of the machine is 8.9 m. (29 ft. 2 in.), the wing span 13 m. (42 ft. 7 in.), and the wing area 25 m² (269 sq. ft.). The height when the machine is standing on its wheels and the airscrew is running is 4.1 m. (13 ft. 5 in.), and with airscrew stopped 3.2 m. (10 ft. 6 in.).

D.E.L.A.



"**D** EUTSCHE LUFTSPORT AUSSTELLUNG 1932 " is the official title of an exhibition at present being held in Berlin. It is confined, as far as aircraft is concerned, to machines of the private-owner type, and contains numerous new prototypes, some serious and others which will remain prototypes for a good many years to come. In the set of photographs above we have collected together some of the more interesting. In 1 is seen the new Focke-Wulf "Falke," with inverted vee Argus engine. 2 seems to be a modern designer's version of the old German Grade monoplane, but with shaft and bevel-gear transmission to the airscrew. Of the two machines shown in 3 that in the background is the Messerschmitt M.31, a most graceful-looking monoplane, while in

the foreground is the new Fieseler 4 with Argus AS 16 horizontally-opposed engine. A rather fine view of the new Dornier "Libelle" amphibian is seen in 4. Note the openings in the engine cowling through which the propeller draws the air to assist in cooling. What the effect is on the airscrew efficiency is not known. A not unattractive project is shown in 5. From the absence of an airscrew it is inferred that the machine is a helicopter, with engine-driven windmill. Note control surfaces on rotor blade tips. The "Week-end Amphibian" in 6 has two Diesel engines, and is to be assisted in starting by a rocket. It is of the tailless type, and has a sort of twin-hull arrangement to give stability on the water. One does not imagine that it will go into production at once.

Air Transport

THE POSITION IN AUSTRALIA

AIR services to, from, and in Australia have been somewhat to the fore in air news of late, and various developments, especially regarding the England-Australia service, have been recorded in *FLIGHT* during the last few weeks. We think, therefore, that the following communication we have received from Mr. Lee Murray—a prominent Australian pilot, who, as our readers are aware, is in partnership in London with our old aviation friend, Mr. W. S. Shackleton, at 175, Piccadilly—will be of special interest to our readers. Mr. Lee Murray writes:—

"After reading reports that have appeared in the daily press and the aeronautical papers, and in particular your article in *FLIGHT* of September 16, entitled 'Australia-England Air Mails,' the impression is left on my mind that the Air Convention held in June was representative of all the large aircraft operators in Australia.

"It was not until I received fuller information from Australia that I realised that the English reports did not appear truly to present the facts, because, arising out of a disagreement at the Air Convention, another body more truly representative of aviation in Australia has been formed—this body is called the Association of Australian Aviation Industries.

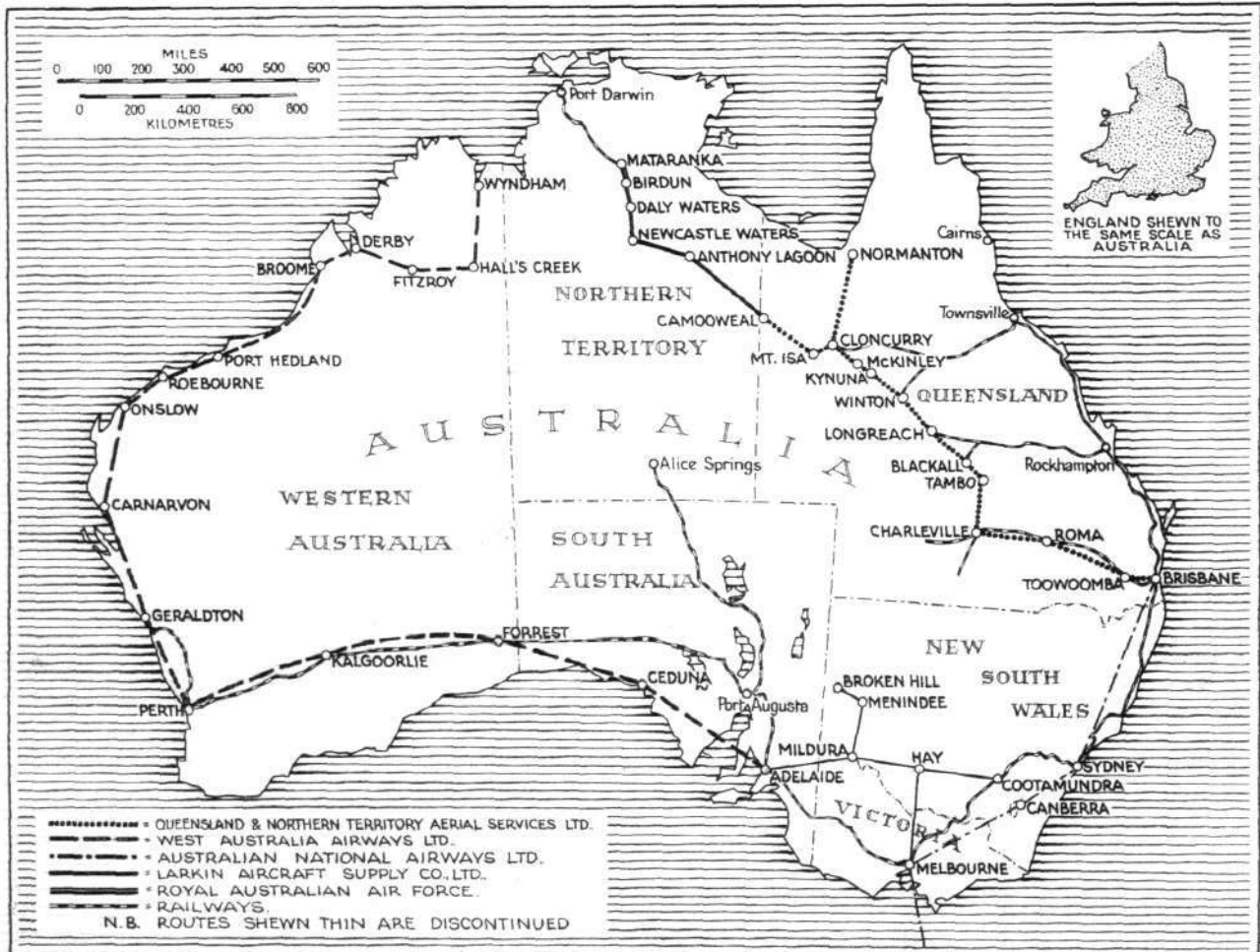
"Before the Convention met many of the leaders of aviation were of the opinion that the policy asked for by the Governing Committee of Inquiry, required considerably longer thought than had been given to it by the leaders of the Air Convention. Furthermore, they were of the opinion that this policy should be carefully framed by a

Committee representative of wide but responsible opinion in the whole Commonwealth. It appeared to them that the policy to be considered by the Convention had been framed by a small section of the aviation community, and that the proposal to test it by referendum was a hit-and-miss method, since the ballot papers would be circulated amongst very many people who could scarcely be well informed and would most certainly be irresponsible.

"With the object of putting these views forward, Australian National Airways, West Australian Airways, Quantas and the Associated Aero Clubs of Australia appointed representatives to attend the Convention. On finding that their views were not favoured by the majority of those at the meeting, which was virtually restricted to a section of the Victorian aircraft operators, and that proxy votes were not to be allowed, these representatives withdrew, and proceeded with the formation of what they considered a suitable and responsible body to frame an aircraft policy for Australia. Thus has arisen a body which has been needed for a considerable time, and should the Air Convention bear no other fruit than this, its life has been well justified.

"The first meeting of this other body, which has been called the Association of Australian Aviation Industries, was held on June 28, 1932. Amongst those present were representatives of the Aero Club of New South Wales, New England Airways, Ltd., Australian National Airways, West Australian Airways, Quantas, the Associated Aero Clubs of Australia, as well as many other aircraft operators and private owners.

"It was decided to form a permanent body to be truly representative of the industry of aviation in Australia. This body was to have a branch in each capital city of the Commonwealth, and each branch was to be controlled by a State Council which would be representative of aircraft operating companies or firms, individual operators, aero clubs, civil flying training concerns, those actively producing aircraft or doing repairs, licensed pilots and ground engineers. As well as these Councils there would be a Central Council which could be available at any time to advise the Commonwealth Government on those matters



AIR AND RAIL CONNECTIONS IN AUSTRALIA : This map shows the principal railways and airways in the Commonwealth. Some of the airways are not at present in operation, as indicated, while other smaller unsubsidised lines, which are, or have been, carrying on passenger services, are not included in our map.

which concerned aviation in Australia at that particular time.

"I think it will be realised that such a body as this is more competent to produce a well-thought-out policy for the guidance of the Government than a hastily called Convention which resorted to a referendum as a means of backing up a policy which had not really the support of the whole aviation community of Australia.

"Trusting that you will allow me sufficient space to include this information so as to make the position clear to those in Great Britain who may be interested."

Our Air Ferries

FOLLOWING on the success of the experimental air ferry service between Bristol and Cardiff, a new regular service between these two cities was inaugurated on September 26 by Mr. Norman Edgar, of Bristol Airport. The present service consists of two trips each way daily (leaving Bristol at 10.45 a.m. and 2.45 p.m., and Cardiff at 11.15 a.m. and 3.15 p.m.), the fares being 12s. 6d. single and 22s. 6d. return; the journey takes about 20 min. Transport to and from the Bristol Airport is provided, free, to the Tramways Centre, whilst at the Cardiff end, cars belonging to Pidgeons Hire Service (who are also booking agents for the Ferry Service) provide transport at 1s. per head. A D.H. Fox "Moth" is used on this service, with "Puss Moths" available as reserve machines.

The daily air ferry services between Shoreham, Portsmouth and Ryde (I.O.W.), operated with "Monospar" and Westland "Wessex" machines, by the Portsmouth, Southsea & Isle of Wight Aviation Co. in conjunction with Southern Aircraft, Ltd., has been running successfully since September 6 (the Portsmouth-Ryde section having been in operation some time previously). It would seem that this service is likely to become firmly established, and should prove popular not only amongst holiday makers, but also with the inhabitants of the towns served.

Meanwhile the ferry service between Liverpool and the Isle of Man, which has been operated during the summer by British Amphibian Air Lines with a Saro "Cutty Sark" amphibian machine has, we understand, closed down for the winter season. Flt. Lt. T. Rose recently flew the "Cutty Sark" from the Isle of Man back to Cowes, presumably for overhauls, etc.

Trans-Indian Air Line

NEGOTIATIONS are in progress between the Government of India and the Government of Ceylon regarding the extension of the Karachi-Madras air mail service to Colombo, a connection which would, of course, greatly strengthen the Indian service and swell the volume of the tributary to the main Imperial Airways system. It is supposed that the requirements of the scheme will not involve any considerable expenditure to Ceylon, as only provision for the berthing of seaplanes near Colombo harbour and a convenient hangar for aeroplanes are needed, in addition to extra landing places at Neganubo and elsewhere to ensure adequate facilities during the monsoon.

The Air Route in Persia

THE Royal Dutch Air Service has received permission from the Persian Government to continue to use the aerodromes in Persia on its route to the Dutch East Indies. The Persian Government refused to renew its contract with Imperial Airways, which is now about to use aerodromes along the Arabian coast of the Gulf, as explained on page 919 of our issue of September 30 last.

Pan-American Airways in Alaska

We have received some additional information regarding the purchase of Alaskan Airways by Pan-American Airways, reported in our issue of September 23. The newly-formed subsidiary company, Pacific Alaska Airways, Inc., have now acquired the assets and business of Pacific International Airways, Inc., and the lines operated by this concern will be merged with the other lines, giving Alaska one unified system of airways serving virtually all the important centres and industries in the territory; headquarters for the unified Alaskan lines have been established at Fairbanks. Pacific International Airways, Inc., was formerly owned and operated by Edward H. Lowe, Jr., of Grand Rapids and San Francisco. For many years Mr. Lowe has been interested in the development of Alaskan industry and has passed a great part of his time in the territory. He was one of the first to advocate the use of air transport to meet the desperate need of the Alaskan people and industries for rapid, regular transportation which the nature of the terrain renders virtually impossible

by other means. The lines just acquired by Pan-American have been in operation for more than two years, carrying U.S. mail on "Star" mail contracts and doing a substantial business in fur transport and charter flights, as well as scheduled transport operations. They comprise two lines joining the interior cities of Tanana and Nenana with the sea coast at Nome and Kuskokwin Bay, and serve a large part of the Yukon Valley. With all the Alaskan lines consolidated into one operating unit, officials of the system will undertake a programme of gradual expansion, as deemed feasible after conferences with representatives of the Department of the Interior, under whose jurisdiction Alaska lies, and with the Post Office Department, which has jurisdiction over the "Star" class mail contracts in the territory. For the present the Alaskan lines will be operated with a fleet of Wasp-powered Fairchild aeroplanes and other flying equipment acquired with the lines. A careful survey will be made as to the type of equipment best suited to Alaskan conditions, after which it may be decided to utilise the multi-motored types of aeroplanes used on the Latin American routes of the system.

Increased Airway Traffic in Sweden

IN spite of the depression there has been an increase of about 50 per cent. in the number of passengers on Sweden's Continental air lines during the first six months of this year, according to a statement by Capt. Florman, the head of the Swedish Aerotransport Company. About 75 per cent. of the passengers are business men who are attracted by the saving of time in transit and by the safety and regularity of the aerial traffic. The former time of transit between Malmoe and Paris, 11 hr., has this year been brought down to 7 hr., and will next year be further reduced to about 5 hr., thanks to the fact that luncheon will be served in the planes to eliminate the previous luncheon interval at Amsterdam. Other novel features are the facility for the passengers to send private radio messages while in the air and the introduction next year of special night planes with sleeping accommodation for the passengers. Capt. Florman emphasises the unique safety of the Swedish lines, which since the start have not had a single accident to any passenger, and the noted skill of the pilots, who have had valuable training as pilots in the night mail service. Further to stimulate interest in the air lines, the Aerotransport Company has reduced the fares of the Baltic Air Express by 25 per cent. on the Malmoe-Paris stretch, so that the cost approximately corresponds to the second-class railway fare. It should be added that the recent accident to one of the planes of the Aerotransport Company, in which the pilot and the radio telegraph operator were killed, does not alter the record as regards passenger flying in so far as the plane destroyed was one of the night mail machines.

Air Mail Changes

THE Postmaster-General announces that as from the flight leaving London on October 1 the aeroplanes of the England-India air mail service will cease to call at Limassol (Cyprus) and at Bushire, Lingeh and Jask, and will fly to the south of the Persian Gulf, calling at Bahrein. In consequence, the air mail service to Cyprus is suspended and air mail correspondence for Persia will in future be conveyed by air only as far as Baghdad or Basra, thence by the ordinary route. The air postage rate for Bahrein will be 6d. for the first half-ounce and 5d. for each additional half-ounce for letters and 3d. for postcards.

Commencing on October 3, the latest times of posting air mail correspondence in the air mail letter-box outside the General Post Office, London, for European countries will be as follows:—Weekdays.—6.30 a.m., France, Italy, Switzerland; 7.15 a.m., Austria, Belgium, Czechoslovakia, Danzig, Denmark, Estonia, Finland, Germany, Holland, Latvia, Lithuania, Norway, Poland, Russia and Sweden; 11.0 a.m., France, Holland, Spain; 7.0 p.m., Austria, Bulgaria, Czechoslovakia, Danzig, Germany, Greece, Hungary, Latvia, Lithuania, Poland, Roumania, Turkey, Yugoslavia; 7.0 p.m. (except Saturdays), Switzerland; 7.0 p.m. (Saturdays only), Norway, Sweden.

The latest time of posting air mail correspondence for Algeria and Tunis will be 6.30 a.m. on weekdays. Morocco 11.0 a.m. on weekdays, West Africa and South America (via France) 7.15 a.m. on Saturdays, French Indo-China 6.30 a.m. on Wednesdays and for the air service to the Dutch East Indies 11.0 a.m. on Wednesdays. The latest time of posting air mail parcels at the General Post Office, London, for Austria, Czechoslovakia, Germany and Hungary for conveyance by the night air mail service to Germany will be 5.30 p.m. instead of 6.30 p.m.

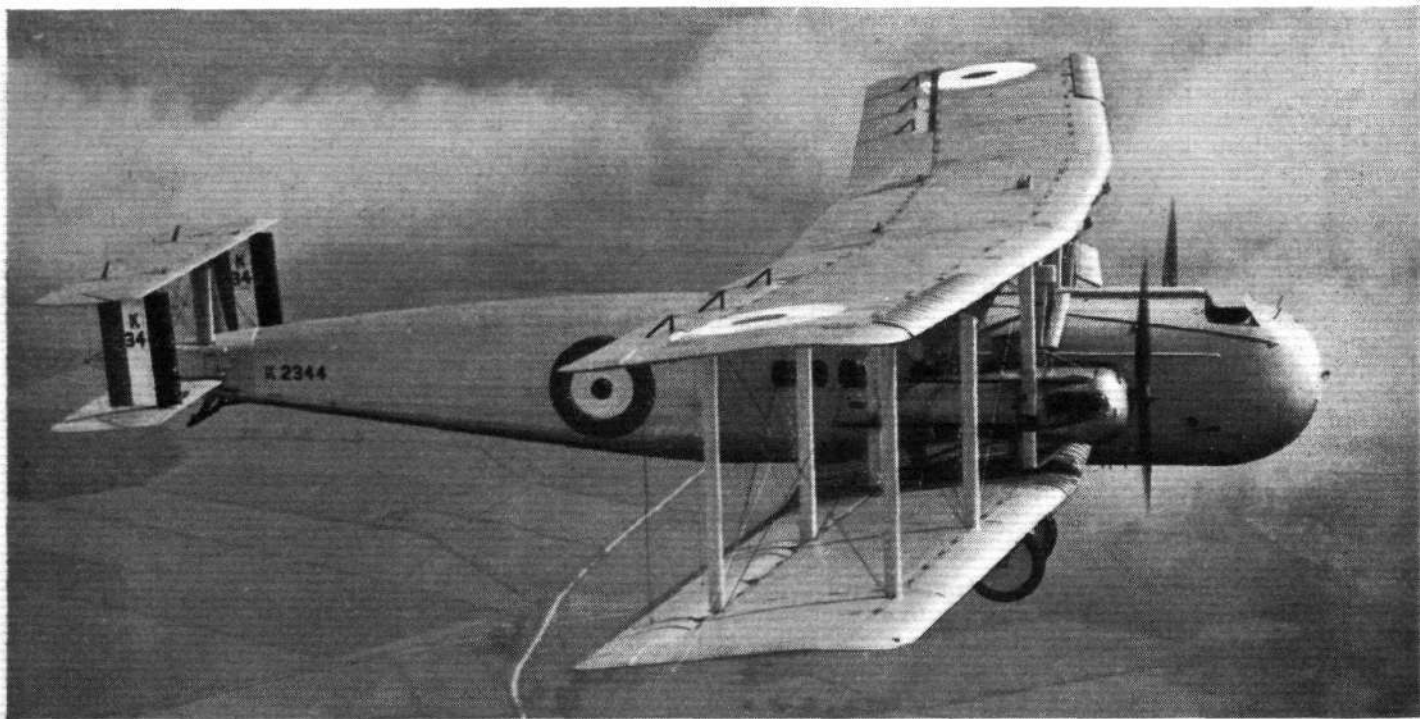
SCHOOL HOUSE AND SCHOOL ROOM

THE ability to fly entirely by instruments has only of recent years come into prominence as a desirable quality for all pilots. Now that it has, it is realised that for accurate flying it is essential that pilots disregard the promptings of their sense of feel and balance. Many find this very hard to do and will insist on handling the machine according to feel and not according to the instruments. As a cure for this type of pupil this Vickers "Victoria" was fitted with two complete sets of controls in the cabin, one facing forward and one facing aft. A short course of following the instruments when facing the tail of the aeroplane is said to have made a successful instrument-flying pilot out of the most stubborn case. In the "Victoria" the pilot in the front cockpit has, of course, all his normal controls as well as instruments for blind flying and he can thus take over at any time if the pupil in the cabin should get into difficulties. Both the inside panels are also fitted with Reid & Sigrist turn and bank indicators as well as pitch indicators.

In the photograph below, the absence of a pilot in the front cockpit emphasises that the "Victoria" really can be flown from inside.



THE SCHOOL ROOM : A view inside the "Victoria" showing the unique "back to front" arrangement for instruction.



THE SCHOOL HOUSE : This Vickers "Victoria" (Napier "Lions") is used at the Central Flying School for instrument-flying instruction.



Our Flying Princes

THE PRINCE OF WALES, who—as reported last week—opened the Anglo-Danish Exhibition at Copenhagen on September 24, flew on September 28 from Bjerbygaard across Denmark to Fyn, in a naval seaplane, which was escorted by eight others, of the Danish Royal Air Force. The Prince's pilot was Lt. Harms. After flying back to Copenhagen on September 30 the Prince crossed the ferry to Malmo, where he was met by Prince George, who had flown there from Croydon earlier in the day (see Croydon Notes on page 941), and both later proceeded by train to Stockholm. It is reported that at the conclusion of their visit to Sweden the Prince of Wales and Prince George will fly on a visit to The Hague before returning to England.

That King's Cross Aerodrome

WE understand that negotiations are proceeding regarding the scheme for the construction of an aerodrome over the railway lines adjoining King's Cross and St. Pancras stations, and that a Bill is being drafted, to obtain permission to build this airport, which it is hoped to introduce to Parliament during the next few months. The promoters of the scheme—which was briefly described in FLIGHT for June 12, 1931—are Mr. W. Craven-Ellis, M.P.; Sir Walter Peacock, a former treasurer to the Prince of Wales; Mr. W. Workman, of Workman, Clarke & Co., shipbuilders; Mr. Rodney Hannen, of Holland, Hannen & Cubitts, contractors and engineers; Mr. C. W. Glover, the designer of the airport, and Com. Gibson.



Heracles was very imposing as "she" arrived over the hangar at Bristol Airport. The broadcasting van on the left was most ably worked throughout the meeting by Mr. Dick Ashley Hall.

IN COMFORT TO THE WEST COUNTRY

ON Saturday, October 1, the Bristol and Wessex Aeroplane Club held their annual Garden Party. It seems an unfortunate, but well-established, fact that since moving to Whitchurch the club is quite unable to pick a fine day for their meetings: Saturday was no exception, and until quite late in the evening the low clouds and rain made any form of flying programme almost impossible. Despite these conditions, however, quite a fair number of people arrived, all of whom were only too thankful to park their machines and retire to the hospitable warmth of the club-house.

We ourselves were fortunate enough to travel down in complete comfort in *Heracles*. We have already written a very great deal about the comfort of this class of machine, and the more often we sample it the more decided becomes our opinion that Imperial Airways have certainly provided the most comfortable air travel of any operating company. It is an undoubted fact that the chief factor causing fatigue during travel, and particularly during flights in the air, is noise. In the *Heracles* class of aircraft noise has been eradicated so that the cabin is definitely quieter, steadier and more comfortable than that of the average express train. The question of silence applies equally to the comfort of the pilot, and the control cabin of the *Heracles* is admirable in this respect. The view is excellent and the general layout appears to be satisfactory. There are, of course, points, like the arrangement of the dashboard which could be criticised, but we understand that the instruments have for the most part been placed according to the wish of the pilots themselves. The policy of providing comfort for the passengers, adopted by Imperial, extends not only to the machine, but also to the way it is flown. For example, on almost all occasions it is possible to get into still air by flying high, and this is always done when conditions permit. The result on Saturday, and also on Sunday morning when returning to Croydon, was particularly noticeable, for

on each occasion other pilots arriving in light aircraft, having flown down below the clouds, all reported very bumpy conditions indeed. Capt. O. P. Jones, however, took us above the clouds, which incidentally provided a very pretty spectacle as they were for the most part broken, thus allowing ample glimpses of the ground beneath, and up there the machine was as steady as a rock. The perfect navigation which characterises Imperial's pilots brought us out at our desired position just beyond the aerodrome, from whence we made a couple of circuits of Bristol City before the machine was put down at Whitchurch.

Lunch at the aerodrome was once more excellently arranged by Fortts, of Bath, and after this was concluded



AFTER THE FLIGHT IN *HERACLES* TO BRISTOL: In the centre (with glasses) is Mr. Ernest Pitman, an ardent air traveller, who took some of his family, including Mrs. Pitman, Mr. P. P. Butler, Miss Pinckney and Miss Pitman.

a modified form of flying programme was carried out. First of all, Flt. Lt. R. W. Hall, the chief instructor of the club, gave an aerobatic display on a club "Moth." Following him, Col. Strange then proved very conclusively that the new model "Spartan" three-seater, with the passenger cockpit behind, is an excellent machine for joyriding. He took up six people, in pairs, in a total period of 7½ min., and, even allowing 9 min. for the same amount of work under general conditions, this represents an income of somewhere about £10 per hour at the usual rates. The Hermes IIB, driving the Fairey metal propeller fairly yanked the machine off the ground, despite its load, giving a quick climb, which enabled an excellent circuit to be made with each load. Flt. Lt. Hall then provided a somewhat diverting spectacle by diving his machine through long streamers of paper. This was naturally rather similar to balloon bursting, and provided quite an amusing spectacle. Mr. A. W. Fairlie made a well-timed parachute drop on to the aerodrome with a very large Russell Lobe parachute, which was very effective in demonstrating the non-swinging propensities of this type of chute. Mr. F. R. Walker, who, it will be remembered, won the *Morning Post* Trophy race, took up Miss Delia Crossley's "Swift" (Pobjoy), which had been flown to Bristol by its owner, and gave a really excellent demonstration of its aerobatic capabilities. Not for a long time have we seen manoeuvres carried out with such *eclat*. During the afternoon Capt. O. P. Jones took up five full loads of passengers in "Heracles" for joyrides. Unfortunately, however, the air-mindedness of Bristolians did not run to filling the machine for a proposed flight round Bristol the following morning. Mr. Cliff, of Phillips & Powis Aircraft, Ltd., also managed to induce a fairly steady flow of people to take flights in his "Desoutter." Among those present were Col. Shelmerdine, who flew down with Mr. Weedon in an Airwork "Puss Moth"; Mrs. Shelmerdine came with Lady Bailey in her "Puss Moth," who, incidentally, is becoming an indefatigable attendant at flying meetings; Mr. Richard Muntz, whom we understand is now acting as outside sales and service representative for Airwork; and Capt. Barnwell, who came over from Filton with his son in a "Tiger Moth," despite the very difficult weather conditions. Pratts and Shell-Mex were represented by Mr. Handstock in a "Puss Moth" and Flt. Lt. Bentley in a Comper "Swift"; and the Westland Aircraft Co. by Capt. A. S. Keep and Mr. Penrose in a "Wessex." Sqd. Ldr. Sugden arrived in a "Moth," while there were some seven or eight enthusiastic private owners who had braved the really filthy conditions to attend the meeting. A dance was held in the evening at the Spa Hotel, where over 200 members of the club all thoroughly enjoyed themselves.

One very excellent feature of the afternoon was the enterprise shown by Mr. Norman Edgar, who has recently



(L to R) Sqd. Ldr. Sugden, Col. F. C. Shelmerdine (Director of Civil Aviation), Mr. Downes-Shaw (Chairman of the Bristol and Wessex Aeroplane Club), Capt. O. P. Jones (in command of *Heracles*).

established a ferry service to Cardiff and which has already been announced in *FLIGHT*. On this occasion he had contracted to take the Clifton rugby team to Cardiff to fulfill an engagement there, and naturally the weather conditions made this contract extremely difficult to uphold. Mr. Edgar, however, succeeded by raking together quite a large fleet of machines. The team drew their match. Getting them back from Cardiff was an even more difficult proceeding, but once more Mr. Edgar was successful by utilising to the full, the help of many volunteers. Amongst these should be mentioned Col. Strange, who with the "Spartan" three-seater good-naturedly missed his chance of returning to London that night by going over to Cardiff for the last two members of the team. Mr. Edgar tells us that the ferry service is running regularly now, and there is quite a steady demand for the service. By way of contrast, and as a fitting conclusion to his visit, Capt. Jones amused the crowd on Sunday morning by flying the "Wee Bee" (Bristol Cherub) which Mr. Edgar has there for sale.

C. N. C.



Clifton Rugby Club, Bristol, who flew to their match at Cardiff against Glamorgan. Arrangements for their transport in seven aeroplanes were made by Mr. Norman Edgar, of Norman Edgar Air Taxis, Bristol Airport.

From the Clubs

THE FEDERATION AERONAUTIQUE NATIONALE

The Third Annual Convention of the Federation Aeronautique Nationale (Associated French Aero Clubs) was held on Friday and Saturday, September 16 and 17 last, in the Town Hall at Marseilles.

In the absence of Mr. Paul Bernier, the Under-Secretary of State for Air, who was to have presided at the opening of the Convention, but who was detained in Paris, Mr. George Causeret, the Prefet of the Bouches des Rhone Department (in which Marseilles is situated), officiated in his place. The delegates were welcomed by Mr. Ambrogi, President of the Aero Club of Provence (local Aero Club of Marseilles), and then Mr. Gilbert Sardier, President of the Aero Club of Auvergne and a Vice-President of the Federation, addressed the delegates.

After reading a telegram of regret from Mr. Rudolph Soreau, the President of the Federation, regretting his inability to be present on account of illness, Mr. Sardier thanked the President of the Aero Club of Provence for his aid in organising the Convention, and announced that delegates from 82 affiliated Clubs had come to Marseilles to take part in the proceedings. He particularly called attention to the efforts made by members of the Clubs in the various Colonies to be present, the delegates of whom had come to the Convention by air. Mr. Sardier cited particularly Mr. Geneste, Secretary General of the Aero Club of Cochinchina, who had passed 72 hours in the air in flying to Marseilles; Mr. Billon Dupman, President of the Aero Club of Algeria, who had flown from Algiers by seaplane; and Mr. Babion du Pratviel, of the Aero Club of Morocco, and Mr. Dupuis, of the Aero Club of Tunis, who had also come to the Convention by air. These delegates flew about 25,000 km. (15,000 miles) in all, and Mr. Sardier emphasised the good example set by them.

Mr. Henry Chollat, the Secretary General, then made a report of the activities of the Federation for the past year. He stated that:—

The Federation now had a membership of 92 affiliated Clubs, comprising some 100,000 enrolled members.

The aircraft owned by these Clubs themselves (apart from the machines belonging to their members) had effected more than 7,000 hours in the air during 1931.

An Aeronautical Information Centre had been established by the Federation, in conjunction with the Touring Club of France, during the past year. Aeronautical Insurance Tariffs had been arranged, the lighting of airports improved, gliding encouraged, and the Calendar of Aeronautical Events increased.

Mr. Chollat further announced that it was the intention of the Federation to lend its support to a Tour of France by new types of aeroplanes of the year, and to organise a National Aviation Day so that aeronautical propaganda would reach the general public.

The Convention then passed a set of resolutions requesting the Air Ministry to give larger appropriations and afford greater facilities for the training of reserve pilots. It also requested that a separate Bureau be established to direct these activities.

At the executive sessions the following day the Convention also adopted the following resolutions:—

That the number of civil airports should be increased, together with the number of repair and service stations.

That the law of May 31, 1924, forbidding aircraft to land in the country, except on designated airports, should be amended as soon as possible.

That aircraft should be allowed to land without the permission of the owner of a property (landowner) and then to "take off" again. Also that a proprietor should be allowed to invite pilots to land and then to "take off" again as desired.

That a larger scope be given to premiums accorded private aeroplanes.

That the Federation should extend its aid in every way possible to further the extension of the National Weather Bureau Report Service (Office Nationale Meteorologique), and to establish correspondents of the O.N.M. everywhere that it was necessary.

On Sunday, September 18, the delegates visited the Port of Marseilles and the Airport of Marignane (as the city's nearby airport is known).

A Rallye organised by the Aero Club of Provence brought some 40 aircraft to the airport, and an Aeronautical Fair was held on Sunday morning. Five aeroplanes were presented for sale and two transactions effected. An interesting initiative was thus taken.

A luncheon was served to the delegates in one of the hangars, and numerous air baptisms were given in the afternoon by a large tri-motor aeroplane loaned by the Air Orient Co.

The delegates were also entertained at a banquet on Sunday evening, offered them by the Aero Club of Provence and the Chamber of Commerce of Marseilles, which many prominent personages and airmen attended.

R. C. W.

THE HAMPSHIRE AEROPLANE CLUB

Members of the Hampshire Aeroplane Club played quite a considerable part in the success of the meeting held by the Women's Engineering Society at Atlantic Park Aerodrome, Eastleigh, on September 18, and unfortunately a paragraph to this effect was inadvertently omitted from our report of the occasion. Just at the time when things during the meeting became somewhat slack, a very pretty little formation came over led by Mr. Jopp. Although the pilots had flown together on only one or two previous occasions, and despite the fact that the clouds were low and the weather bumpy, their performance was very creditable indeed. They altered formation several times and finished up with a very fair "Prince of Wales' Feathers." Unfortunately, they did not land, and we were therefore not able to meet the members taking part. Later in the day we had the pleasure of taking tea in the Hampshire Aeroplane Clubhouse at Hamble, where we were entertained by Mr. Jopp in a novel manner which he had made his own. Personally we feel there is money to be made out of it, and we advise anyone who takes pleasure, in being converted to believe in the unbelievable, to ask Mr. Jopp for a demonstration. His stage props are not costly and the performance can be carried out anywhere, all that is needed being an insect of the genus *Vespa* (but not that flown by Flt. Lt. Uwins), a little beer and a large amount of salt.

The machines of the club have flown over 1,300 hr. since the beginning of this year, although they have only four machines. Some 16 members have taken their "A" licences, among them being Mr. Eric Verdon Roe, the son of Sir Alliot Roe. Mr. Eric Roe actually went solo in May, but, being not 17 years old, he had to wait until his birthday in August. One member took his "B" licence during the year. Some 48 new members have



FOR SEAPLANE TRAINING: An "Avian" (7-cyl. Armstrong-Siddeley Genet Major) with all-metal "boots," which is used for training seaplane pilots at Hamble by Air Service Training, Ltd.

joined, bringing the total membership to 340, of whom 220 are active flying members. In this respect, however, it should be noted that this does not include the large number of Royal Naval Flying Club members who fly at Hamble regularly.

READING

Over 80 learned ladies and gentlemen forming the staff of the Reading University, together with their friends, visited the aerodrome on Saturday, September 24. These included Dr. and Mrs. Allen, Miss Wiseman, Mr. and Mrs. Mackintosh, Mr. and Mrs. Tudor, Capt. and Mrs. Featherstone-Haugh and Mr. and Mrs. Flood Page. The whole party were shown over the aerodrome buildings, hangars and repair shops, and a limited number were given joyrides in the club machines. After tea in the clubhouse F/O. J. F. Lawn gave an aerobatic exhibition in the Miles "Satyr," the first description of which appeared in FLIGHT for August 5, 1932. Mr. L. N. Blain, one of the club members from South Africa, started his instruction on Monday, September 19, and went solo on the following Saturday after 8 hours' dual instruction.

Autogiro instruction is now a part of the school curriculum; those wishing to take instruction on these types should write to the school and book a lesson.

The new hangar is rapidly taking shape, and it will soon be possible to offer increased accommodation to visitors: also the new steward is settling down well, and things are running very smoothly in consequence.

The school machines are now all fitted with "Doughnut" wheels and Air-Logs have also been fitted, with the result that log-book keeping has been simplified for lazy pupils!

Visitors during the week included Flt. Lt. "Tom" Rose in the "Cutty Sark" G-AAIP, and Mr. R. C. Brie in the cabin autogiro, G-ABLM.

LONDON AEROPLANE CLUB

The first of a series of house dances is being held at the London Aeroplane Clubhouse, Stag Lane, on Saturday, November 5, starting at 8.30 p.m. A complete list of the programme of similar events will be posted to all members in due course.

A week of bad school weather was brightened at the end by the arrival of Miss Betty Warren and Mr. Lawrence Wright, the composer and publisher, in Imperial's "Wessex" from Blackpool. Mr. Olley made a very fast trip down, and, thanks to a car provided by the London Aeroplane Club, they were in the middle of London within two hours of leaving Blackpool.

AT BROOKLANDS

Over 50 hr. flying were done at Brooklands during the past week, the majority of which was dual instruction. Messrs. Vaughan and Ahlers have nearly completed the tests for their "B" licence, the former, incidentally, coming from South America, to which country he is returning, together with his machine, after getting his licence. Several taxi trips have been made on Brooklands machines, while the Junkers of Personal Flying Services has been constantly busy. During the winter a special reduction of 20 per cent. will be made on all flying rates, but, despite this very substantial reduction, the standard of instruction will in no way be altered; every pupil will continue to have individual tuition throughout his training.

MEDWAY TOWN'S RALLY

A flying meeting is being held in connection with the Medway Town's Civic and Empire Week on October 8 at Starfield Aerodrome, Gillingham. The meeting is being organised with the assistance of the personnel and machines



WITH THE POBJOY R.: Two single-seaters, showing different designers' ideas of utilising the same engine. Above is the Comper "Swift," designed by Flt. Lt. N. Comper (note the Indian registration letters), and below Mr. P. G. Miles' "Satyr," the first information of which was given in FLIGHT for August 5, 1932.

of the Maidstone Aero Club, while Mr. and Mrs. Mollison will be attending, receiving a civic welcome, and afterwards giving away the prizes. The meeting will begin with an arrival competition at 12.15 p.m., and included in the programme there will also be a landing competition for individual owners, a landing competition for a team of three from any club and a Concours d'Elegance.

AT CARDIFF

The Cardiff Aeroplane Club will be holding an "At Home" at the Cardiff Airport on October 15. In connection with this there will be an air race from Heston to Cardiff run on similar lines to that of last year. The winner will receive a silver cup and £20, the second a silver cup and £5. All the usual flying-meeting items will be included in the programme. After the "At Home" there will be a dinner and dance at the Angel Hotel, Cardiff, where visiting pilots will be entertained free of charge. Visitors staying the night will be accommodated at specially reduced rates. It is expected that ample hangar accommodation will be available in which to house all visiting aircraft.

THE SURREY AERO CLUB

Gatwick races were held on Wednesday and Thursday of last week. Mr. Gordon Richards appropriately arrived by air, and proceeded to win the first race for Mr. F. O. Bezner (the man behind the Redwing). Needless to say the staff had been given the word, and the combined efforts of Hotcha and Mr. Gordon Richards were much appreciated.

Mrs. Macdonald, who is shortly returning to Iraq, went solo this week, and intends to obtain her "A" licence before leaving.

Mr. Hunter is going ahead fast with the improvements to the aerodrome. Mr. Hunter, Jr., has taken their Redwing up to Woodford, and is very pleased with it, by all accounts.

On Saturday, October 1, the Club held an extremely successful first dance of the season. This was well attended, and will be followed, it is hoped, by many equally successful functions throughout the winter.

NORFOLK AND NORWICH AERO CLUB

The Norfolk and Norwich Aero Club will be holding their Annual Ball on Friday, November 25, at the Spring Gardens, Norwich.

A MAIDSTONE "AT HOME"

The lady members of the Maidstone Aero Club held the first of a series of "At Homes" on October 2. Over 250 people accepted the hospitality of the club, and something like 25 aircraft arrived during the afternoon. One particularly gratifying feature was the help given by the R.A.F. from Manston. Grp. Capt. Sidney Smith who attended the meeting believes that a very great deal of good can be done to civil aviation by the R.A.F. assisting the social side of the flying club's work, and he therefore gave permission for some of his officers to fly over in an "Avro" ("Lynx") and two "Moths." It will be remembered that Manston has always supported civil aviation efforts in Kent, and that the success of the recent Round-Thorn race was in a very large measure due to the help received from this source.

At this club "At Home" no attempt was made at putting up a flying programme, as it is felt that fostering the social side of the club is far better done by attention to things like club hospitality than by laying undue stress on what often turns out to be a somewhat unduly extended display of flying. It was unfortunate, however, that Mr. Lowe Wylde was unable to get his latest venture back from Hanworth in time for a demonstration, for, as has already been announced in *FLIGHT*, this is causing a large amount of interest. As at present arranged, the machine is a standard B.A.C. VII two-seater with a 600 c.c. Douglas motor cycle engine above the wing as a pusher, and even in this form it flies well, although, of course, is not meant for any serious work away from aerodromes. A more practical version is however being designed, which it is understood will also be a pusher and probably a low wing monoplane.

Following the "At Home" the club held their regular Sunday evening dance, and some 60 people stayed for this well enjoyed event.

Arrangements have now been made to instal electric lighting in the premises at the aerodrome and advantage of this will be taken to provide night flying and flood-lighting facilities.

NEW AERODROME AT GLOUCESTER

Gloucester took its place among the air-minded cities of England on September 27, when Col. the Master of Sempill opened the private aerodrome of the Westgate Motor House Co., Ltd., on the main Cheltenham-Gloucester road.

In company with the Mayor (Alderman S. J. Gillett) and the City High Sheriff (Mr. Wallace Harris), the Master of Sempill flew off the landing ground in a "Fox Moth" to baptise the aerodrome.

Prior to the opening, a large and representative gathering attended a luncheon on the ground at the invitation

of the Westgate Motor House, the chairman of directors, Maj. J. N. Blood, presiding. Immediately supporting him, in addition to the Master of Sempill, the Mayor and the City High Sheriff, were Messrs. A. W. King (managing director), A. C. Gordon England, G. Heath, W. St. Clair Baddeley, and Capt. C. Uwins.

The Master of Sempill, in a brilliant speech, said that there were undoubtedly several things which were keeping back the full development of aviation. One was the complete lack of facilities for those who wished to fly.

The landing ground could certainly be ranged as one of the best organisations of its kind in the country. Other interests in the motor trade had endeavoured to establish landing grounds alongside their businesses, but none of them had done it so completely as the Westgate Motor House. Maj. Blood and Mr. King did not visualise that landing ground as a permanent institution. It was merely a stepping stone towards something much more complete, for they looked to the day when they would be able, possibly with the assistance of the municipality of Gloucester, to secure an even bigger site, and to help in the establishment of a proper municipal air park for the city. The fact that the Mayor that day was flying to London showed the right spirit.

The Mayor, in the name of all present, congratulated the company upon embarking on that project. Gloucester in company with Cheltenham had had the matter of a municipal aerodrome seriously under consideration for some two years past. He was not at all sure he would be altogether anxious as an individual to suggest to Gloucester and to Cheltenham that they should necessarily do anything which would conflict with the aims and aspirations of private enterprise. If the company could supply the city's needs, he hardly saw why the city should seek to come into the field too. On behalf of the city he congratulated the Westgate Motor House on their venture, and wished the firm well.

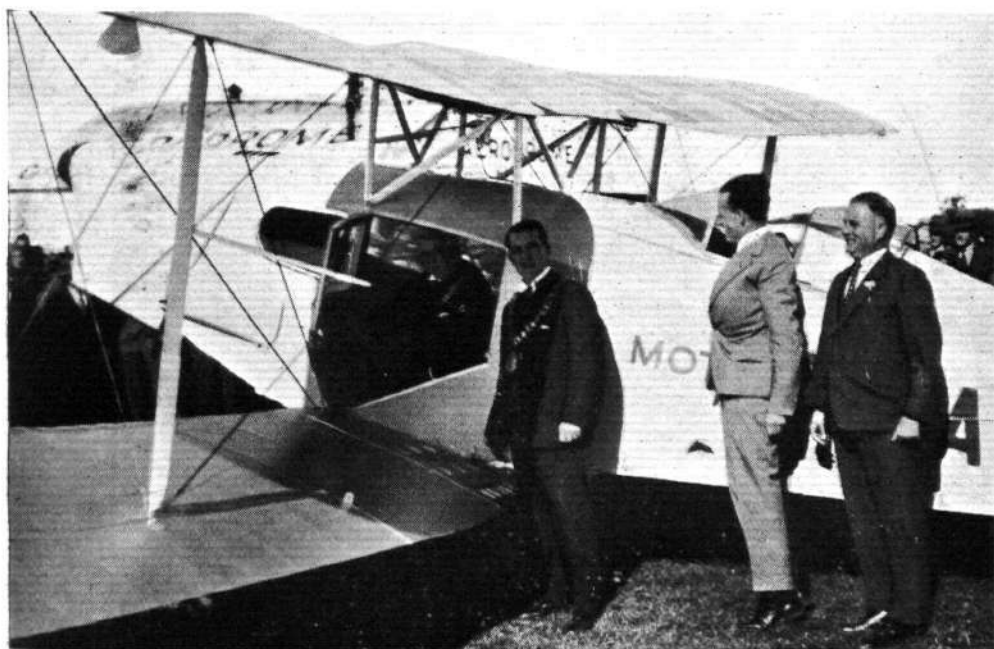
The Master of Sempill proceeded to the locked doors of the hangar nearby, and, having knocked with a spanner for right of entry, declared the aerodrome open. His own aeroplane was wheeled forth from the building. Accompanied by the Mayor and Sheriff he made a thorough tour by air of the city.

The Mayor of Gloucester (Alderman S. J. Gillett) had to be in London in the evening on important civic business, but he had also two engagements in Gloucester which could not be cancelled. Col. the Master of Sempill was returning to London in his "Fox Moth" after his visit to the aerodrome, and readily consented to help the Mayor out of his difficulty; and in company with Mr. Gordon England left Gloucester shortly after 5 p.m., reaching Hanworth at 6.15.

THE DÜSSELDORF MEETING

Some half-dozen British pilots had intended to fly to Düsseldorf for the meeting on September 24-25, but, on seeing the weather reports on the 24th, all, except Mr. C. Cliff, gave up the idea. Perseverance won in the end, for his "Civilian Coupé" took off from Heston on Sunday, and, penetrating through heavy rain in England, found sunshine in Belgium.

Arriving at Düsseldorf at 2 p.m., Mr. Cliff, and his wife as navigator, found themselves most enthusiastically welcomed. Though lunch was officially over, a most excellent meal—"mit Bier"—was immediately produced; after which, as the only British arrival, the "Civilian Coupé" was put on to lead the fly past amid endless repetitions of "God Save the King." Unfortunately the engine went on strike, so England was represented by a "Puss Moth" (Belgian owned) and a "Monocoupe" (German owned), with British registration letters. At the last moment the Genet-Major allowed itself to be persuaded



AT GLOUCESTER: (L to R) Mayor of Gloucester (in the cabin), the City High Sheriff, Col. the Master of Sempill, Mr. A. King (managing director, Westgate Motors), at the opening of the Westgate Motor House Aerodrome. The City officials took a flight over Gloucester in the "Fox Moth" (Gipsy III) with Col. Sempill.

into life, and the machine brought up the rear of the procession, the band again playing the National Anthem. The rest of the afternoon was given over to social entertainment—again "mit Bier"—while landing competitions, bombing, etc., went on in front of the enclosures.

The members of the Düsseldorf Aero Klub placed their cars at the disposal of their foreign guests for transport to the hotel, where the most comfortable accommodation had been reserved and paid for.

The official dinner, given by the Lord Mayor of Düsseldorf, commenced at 8 p.m. and was a most cheery affair, the food and drink being unsurpassable, and the speeches being, very sensibly, sandwiched between the courses. At 10.30 p.m. there was a cabaret and dance. The company was given to understand that they were invited to a "Cabaret"—the Carlton Bar, owned by Herr Meyer, a member of the Aero Klub—and his kind offer was taken advantage of by the English and Dutch contingents, among many others. He turned out to have lived in Cheddar, and waxed lyrical about the indigenous cheeses and strawberries.

No visitor—especially not an Englishman—was allowed to pay for anything, and the party broke up with most heartfelt "Auf Wiedersehn's" at 5 a.m.

The only British visitors, having missed the first day of the meeting, were not allowed to go home on the Monday, but were transported to Aachen, where they were put up (and kept up—till 5 a.m.) by Herr Leo Lammertz, now the owner of the "Monocoupe" G-ABBR.

Never has such a wonderful welcome been received, and Mr. and Mrs. Cliff wish to offer their most grateful thanks to Herr Wegenast, the President, and all the members of the Düsseldorf Aero Klub.

[Mr. Cliff runs the Phillips & Powis Taxi Service at the Bristol Airport.—Ed.]

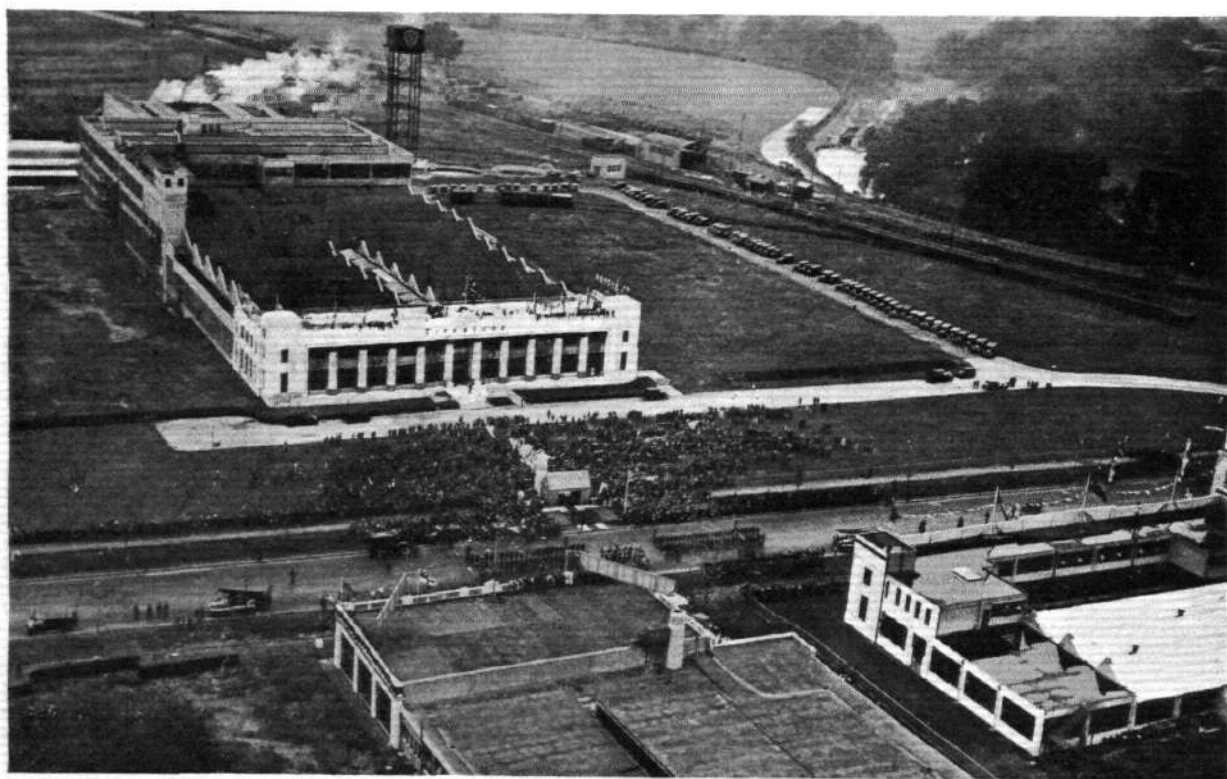
PROGRESS AT THE LONDON GLIDING CLUB

Quite considerable progress has recently been made with high efficiency sailplanes built to very much smaller dimensions than has hitherto been the accepted practice. In fact one might truthfully say that English designers have started a new fashion in this form of aircraft; moreover, a fashion which is already being followed by designers abroad. Two machines in particular have con-

sistently been giving excellent results when flown at Totternhoe, the gliding site of the London Gliding Club. The first of these, the "Scud II," has been designed by Mr. L. E. Baynes and built by E. D. Abbott, Ltd., of Farnham. This was fully described in FLIGHT for September 16, 1932. The second is the "Crested Wren," both built and designed by Cpl. Manuel. This machine, it will be remembered, was described in FLIGHT in the report of the B.G.A. meetings on the South Downs last year. Both machines have a span of about 40 ft. and a wing loading of between 3 and 4 lb. per sq. ft., besides having a degree of controllability in every way comparable to the normal power-driven aircraft. During the recent week-end at Totternhoe both these machines, and also a German sailplane, were taken up under very difficult circumstances with a strong, gusty wind of between 25 and 30 miles an hour. Both the British machines soared consistently at an altitude in the neighbourhood of a thousand feet above the hill, and were up for a number of hours, while the German was so thrown about that the machine was almost out of control, necessitating landing practically immediately. In achieving this success our machines were no doubt helped to a large extent by their comparatively high cruising speed, which is in the neighbourhood of 35 miles an hour.

THE IRISH AERO CLUB

A deficit of £47 19s. 2d. was revealed on the year's working of the Irish Aero Club when the accounts for the period ended December 31, 1931, were presented at the annual meeting of the club last week. The total receipts, apart from the Air Pageant, were £1,910 19s. 8d., an increase on the previous year. There was heavy capital expenditure during the year, and three new D.H. "Moths" were purchased with the assistance of the Government grant of £1,000. An interesting feature was the fact that on the first Air Pageant ever organised by the Club a profit of £64 17s. 8d. was cleared. Several members pressed for the immediate organising of preliminary details for another Pageant to be held in 1933. The following Council was elected for the year:—Senator Dr. O. St. John Gogarty, Maj. S. Dunckley, Dr. S. V. Furlong, Mr. P. Gore-Grimes, Mr. A. P. Reynolds, Dr. G. E. Pepper, Capt. H. J. Hosie, Mr. E. J. Dease, and Mr. R. H. Hill.



PRESENTING THE ROYAL CHARTER: The Duke of Gloucester presenting the Charter making Heston and Isleworth (Middlesex) district a Borough, on the Great West Road, the eastern boundary of the district. A flight of aeroplanes from Heston flew overhead during the ceremony, as did our photographer (in a "Spartan" Hermes IIB). (FLIGHT Photo.)

Airport News

CROYDON

SOME notable achievements have recently been created by Capt. E. Percival with his light cabin monoplane, the "Percival Gull," which he houses at Croydon. Readers will no doubt remember that his was the fastest time of any cabin machine in the King's Cup race this year. This was followed up by obtaining second place in the Thanet Cup race with the fastest time for the day. In the Romford to Clacton race he again scored second place with an average speed of 140 m.p.h., and at Hedon competed for the Yorkshire Cup, which he won. These splendid performances, which are particularly noteworthy, as the "Percival Gull" is fitted with the original "Hermes IV" engine, have, I understand, led its owner to complete negotiations for the production of this type of machine, and it is likely that we shall soon see more of this interesting aircraft about the country.

The third of the new series of Atalanta class of aircraft, the "Andromeda," was delivered to Imperial Airways on Monday, at the same time the original "Atalanta" made her maiden voyage to Cologne, returning the same evening. The "Argosy" G-AACJ, which met with a mishap in Cologne last month when the undercarriage and forward engine were damaged, also returned on Monday, having been detained in Cologne for ten days.

Imperial Airways have loaned two pilots and two machines to the Iraq Petroleum Co. Capt. G. I. Thomson left on Thursday in the D.H.50 for Iraq, which will be his headquarters for the next six months, and Mr. S. Wheeler is expected to depart for the same destination very shortly in the Avro 10.

Prince George, accompanied by his equerry, Maj. Humphrey Butler, left Croydon at 10.24 on Friday morning in the Royal Dutch air liner for Malmö, their destination being reached only one minute behind schedule, despite a delay at Croydon of 9 min., on behalf of the Prince, followed by a stop at Rotterdam for a quarter of an hour and a stay of 50 min. for lunch at Amsterdam. Also a strong head wind was encountered throughout the flight. The whole journey took 7 hr. 7 min.—an outstanding example of this splendid service operated by K.L.M. and A.B.A. During the lunch interval at Amsterdam the Prince and his equerry took advantage of the opportunity to inspect the specially fitted Fokker 18's which operate the Amsterdam-Batavia service. His Royal Highness and Maj. Butler both expressed a very

favourable opinion of these machines. It is interesting to know that the Amsterdam-Batavia service, which covers a distance of approximately 9,000 miles and is run solely by the K.L.M., is still the longest regular air service in the world.

Flt. Lt. H. M. Schofield, chief test pilot and sales manager of General Aircraft, Ltd., and Mr. H. J. Stieger, the managing director, left on Saturday morning in G-ABUZ en route for their continental tour, which will include demonstrations of the Monospar in Italy and Switzerland, particularly, of course, at Rome and Zurich.

Mr. Jackaman's Monospar, which he had the misfortune to damage recently, was ready for him to take away from the works on Saturday morning, and I think there is every chance of the machine being present at the Charter Air Pageant which is being held at Heston on the 8th inst.

Another Monospar, in an extremely effective colour scheme of silver and red, is rapidly approaching completion, and other machines are coming through nicely for delivery within the next month or so.

Winter services generally started on Saturday, and there is an increase in the number of services this season compared with the winter of last year. In addition to Imperial Airways 5 p.m. service to Paris, the Scandinavian Air Express, previously mentioned, which is run by K.L.M. and A.B.A., will, for the first time, be continued throughout the winter. The night freight machine to Berlin, which leaves Croydon at 10 p.m. and is run by the Deutsche Luft Hansa, will be continued until the end of this month—an extension of fourteen days longer than last year—and will start again on March 1, 1933, which will be a month earlier than this year.

An interesting feature of the Scandinavian Air Express is that this service is to be considerably accelerated from November 1. Only one stop will be made en route between Croydon and Copenhagen, and that will be for 15 min. at Amsterdam. There will be no stop at Rotterdam. The total time for the journey will only be 5 hr. 50 min., instead of the present time of 7 hr., a saving of 1 hr. 10 min. on a journey of approximately 600 miles.

The total number of passengers for the week was 1,574, freight 61 tons 18 cwt.

HORATIUS.

FROM HESTON

FLT. LT. ATCHERLEY left Heston Airport at 6.15 a.m. on Monday, September 26, to fly back to Amman, Transjordan, from two months' leave. One machine cleared for Berck and several private owners were flying. Otherwise, with the School closed, it was a quiet day.

On Tuesday, September 27, Mr. P. E. G. Marshall, of Brian Lewis & Co., qualified for his "A" licence with Airwork School of Flying. Capt. Ledlie, of Personal Flying Services, Ltd., arrived from Berck with three passengers in their Junkers, while one machine left for Paris and one arrived from the same city. Another pupil joined the Airwork School of Flying.

Two machines arrived from abroad—one from Paris and one from Brussels—on September 28.

On Friday, September 30, Capt. Percival paid us a visit on the Percival "Gull." Several other pilots tried it out in the air. Banco had a charter to Paris with two passengers, returning later in the day. Mr. R. P. G. Denman, a director of Airwork, Ltd., returned from a short visit to New York with, no doubt, many new ideas on airport organisation. A party of about fifty from the Ladies' Electoral Association of Hounslow visited the Airport this afternoon, under the leadership of Mrs. Nias, the

wife of the Charter Mayor. This party concluded the organised visits of inspection to the Airport this season. We feel that the trouble taken to organise them has been amply repaid by the enthusiasm shown by the visitors and the knowledge gained, by the non-flying community, of the aviation world.

On Saturday, October 1, Mr. Maurice Jackaman visited us with his "Monospar," with a full passenger load. Lt. Col. Shelmerdine, Director of Civil Aviation, left in a "Puss Moth" of Airwork School of Flying, piloted by Mr. Weedon, for Bristol and Tollerton.

On Sunday, October 2, Mr. Jamar arrived from St. Ingelvert with his "Moth," ZS-ACZ, for overhaul prior to his return to Elizabethville, Belgian Congo. Several private owners set off on cross-country journeys—all well wrapped up. Being able to purchase flying kit at the Airport has proved a great convenience to flyers who find themselves in need of such at the moment of starting. Also, the large stock of Automobile Association Air Routes and General Flying Maps of the Continent and England, together with Civil Air Edition Ordnance Survey Maps, has been largely used by private owners, and the facilities for obtaining carnets for travel abroad at any time has proved a great convenience.

Airisms from the Four Winds

The Japanese Pacific Flight

SOME anxiety is being felt for the safety of the Japanese pilot, Mr. Baba, and his mechanic, who left Samushira (Japan) on September 24 for San Francisco, and were last heard of passing over Etoroup Island of the Kurile group. His machine was a Junkers.

Mr. Grierson's Russian Flight

MR. JOHN GRIERSON, who recently flew to Russia, has just completed a 4,000 mile flight from Moscow to Samarkand and back. He reached Samarkand on September 27 and returned to Moscow on September 30.

America Wins Gordon Bennett Balloon Contest

SIXTEEN balloons, representing eight nations, ascended from Basle on September 25 in the annual Gordon Bennett Balloon Contest for the cup presented by Mr. Henry Ford. The starters were as follow:—America, *Goodyear VIII* (Van Orman); U.S. Navy (Lt. Com. Settle). Belgium, *Belgica* (M. Demuyter). Germany, *Barmen* (Otto Bert-ram); *Stadt Essen* (F. Eimermacher); *Deutschland* (Erich Leimkugel). France, *Lafayette* (G. Blanchet); *L'Aventure* (M. Marquant); *Petit Mousse* (G. Ravaine). Austria, *Ernst Brandenburg* (Capt. Baron von Etthofen). Poland, *Polonia* (F. Wladislaw); *Gdynia* (H. Franciszek). Switzerland, *Zurich* (Lt. Col. Gerber); *Victor de Beauclair* (Capt. Huber); *Basel* (Dr. A. Van Baerle). Spain, *14 de Abril* (A. Nunez). Great Britain was not represented. For the third year in succession, America succeeded in winning the cup (subject to confirmation), by covering a distance of 960 miles, the balloon U.S. Navy having landed at Wasjule, near Vilna. The favourite, Van Orman's *Goodyear VIII*, last year's winner, was second, having covered 864 miles. The next four were as follow:—3rd, *Petit Mousse* (France), 770 miles. 4th, *Polonia* (Poland), 727 miles. 5th, *14 de Abril* (Spain), 714 miles. 6th, *Gdynia* (Poland), 672 miles.

A R.A.F. Scandinavian Cruise

THREE Supermarine "Southampton" flying boats (Napier "Lion" engines), which left Felixstowe on September 5 for Copenhagen, to represent Great Britain during the Exhibition, and thence to Gothenburg, Oslo, and Trondhjem, returned to Pembroke on October 1. They had flown 3,237 miles without mishap of any kind.

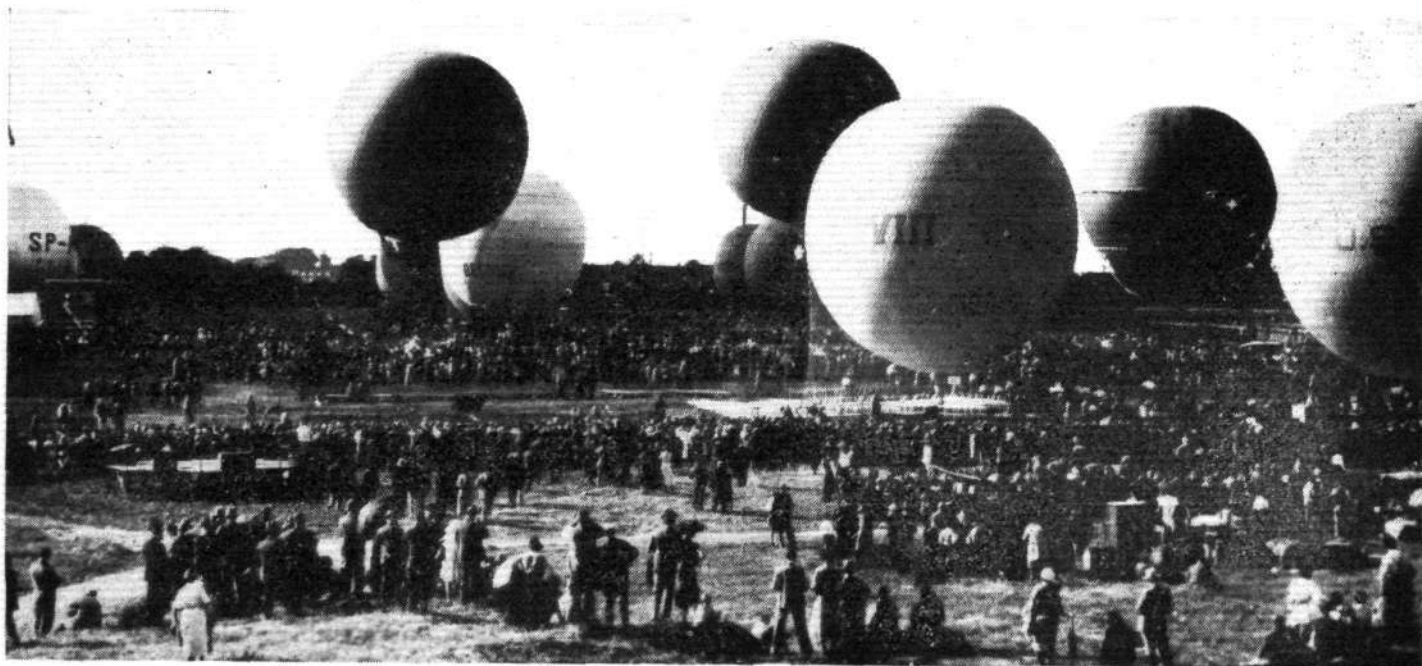
The Altitude Record

"If you see it in FLIGHT it is so" seems to be the attitude of most of our readers, and it is a reputation which we naturally value very highly. But—*Noblesse oblige!* One result is that we are not permitted to make mistakes. We flatter ourselves that we make comparatively few, but when we do we are not left long in ignorance of the fact. Last week two slips occurred, and



THE THOMPSON TROPHY: Maj. James H. Doolittle (left) receives congratulations from C. E. Thompson on winning the 100-mile Thompson Trophy race at the recent Cleveland National Air Races. His speed was 252 m.p.h., and his machine was the "Gee Bee" monoplane (doped with Titanine), illustrated in "Flight" for September 23, on which he claimed a speed of 300 m.p.h.

our telephones were buzzing all day Friday with the voices of good friends who wished to call our attention to the errors. Unfortunately they were all too late, as we discovered the mistakes at once when we got the first copy from the printers. By that time, however, a considerable number had been printed. In the caption to the photograph of the "Pegasus" engine on page 914 occurred the expression: "Note the Townsend ring coupling." This should, of course, have read *ring cowling*. In Editorial Comment, in the left-hand column on page 910, occurred the passage "Hydrogen apparatus is, like all other mechanical contrivances, fallible." Oxygen was, of course, what we meant.



THE GORDON BENNETT BALLOON CONTEST: A general view of the start from Basle for the annual contest on September 25. There were 16 starters, and the cup was won (provisionally) by America (see above).

STOCKTAKING

THE Annual Report of the Aeronautical Research Committee for the year 1931-32 was issued on September 27 (H.M. Stationery Office, price 2s. net), and if it contains little that is new, it does at any rate give a reasonably good picture of the present state of the art and science of aeronautics. As in previous years, the publication is divided into two sections, of which the first is a report to the Secretary of State for Air, and is signed by Sir Richard Glazebrook, Chairman of the A.R.C., while the second is a supplement and deals in rather greater detail with the various subjects.

Aerodynamics

Sir Richard Glazebrook calls attention to the satisfactory progress made with new equipment for aerodynamic research, and refers to the new compressed-air tunnel at the N.P.L. being in working order, while No. 1 tunnel is being replaced by a new tunnel with elliptical cross section and a top speed of 200 ft. per sec. At the R.A.E. the outstanding innovation is the installation of the 12-ft. vertical tunnel for free-flight tests on spinning models. The new 5-ft. open-jet tunnel will have its speed raised to 215 m.p.h. Of the new 24-ft. tunnel being built by Boulton & Paul it is stated that it is hoped to have it installed and in working order before the end of 1933.

Spinning

Sir Richard considers that satisfactory progress has been made in the investigation of spinning. He refers to the effect which deepening the body towards the rear, and raising the tailplane with respect to fin and rudder, has on the ease of recovery from a spin. On the other hand, in writing on the subject of "buffeting," Sir Richard points out that the tailplane of a monoplane should be placed "in the lowest practicable position in relation to the wings." The unfortunate aircraft designer will be hard put to it to find a working compromise between these two desiderata. The interesting information is given in the supplement to the report that a suggested way of bringing an aircraft out of a spin when the usual control movements have failed might be to attach a parachute to the outer wing tip, the parachute being released to act as a brake on the spinning aeroplane. The scheme has been tested on a model in the R.A.E. vertical spinning tunnel, where it was found to work satisfactorily. Full-scale tests are reported to be in progress. If these are a success, it is held that the dangers of carrying out spinning tests on new machines of unknown properties would be considerably reduced.

Stability and Control at Stall

The problem of obtaining adequate lateral control and stability for stalled aeroplanes is considered to be solved by the use of slots and interceptors near the wing tips, but it cannot be said that the whole question of lateral control is completely understood, and it is interesting to find Sir Richard Glazebrook making the statement that "it seems possible that if the matter were thoroughly understood a sufficient degree of safety for many purposes might be achieved, merely by correctly shaping and arranging the wing and tail organs without using additional mechanism on the wings." He thinks, however, that it is probable that the degree of stability and control that can thus be secured never approaches that obtained by the use of slots and interceptors. To elucidate the subject a research has been initiated at the N.P.L. on the effect of fitting wing tips of different types on a wing whose general properties are well known.

The Effect of Gusts

Some time ago we announced that in the near future a vertical gust condition was likely to be imposed soon as a stipulation in strength factors for certificates of airworthiness. Sir Richard Glazebrook, in referring to the subject, states that there are two main types of vertical gusts. Those due to atmospheric conditions, such as thunderstorms, line squalls, etc., and those due to undulations in the contours of the ground. In the former type vertical gusts with a velocity up to 30 ft. per sec. may be experienced. From the point of view of strength of aircraft, Sir Richard points out, the danger depends not so much on the absolute vertical velocity of the gust as upon the rate at which the aeroplane enters the gust.

This, in turn, depends upon the horizontal speed of the aeroplane and upon the sharpness with which the boundary of the gust is defined. A few aeroplanes equipped with continuously recording accelerometers have been allocated at the R.A.E. to fly in conditions in which strong vertical gusts are likely to occur. In the supplement to the report it is stated that flights made at the R.A.E. resulted in maximum and minimum values of the normal accelerometer readings of 2.3 g. and 0.3 g. respectively, both occurring when flying in the neighbourhood of cumulus clouds. On the hypothesis of a simple sharp-edged gust, the corresponding gust velocities were 17 ft./sec. upwards and 9 ft./sec. downwards. It is considered that there is little likelihood of meeting bumps of greater severity over S.E. England. Similar measurements were made in Scotland, and the maximum and minimum readings obtained were 3.0 g. and 0 g. respectively, corresponding for the machine in question to an up-current of approximately 30 ft./sec. and a down-current of approximately 15 ft./sec. respectively. None of the flights was made in winds of more than 20 m.p.h., and the work is to be continued in stronger winds. It is also proposed to fit maximum reading or statistical accelerometers to passenger aircraft operating over established air routes, and to obtain records extending over considerable lengths of time. A statistical accelerometer has been devised by Mr. W. S. Farren, of Cambridge, and is an instrument which counts and records the number of times an acceleration of pre-determined magnitude is exceeded.

On the theoretical side the relation between vertical currents and the stresses they induce has been discussed by various authorities, and it has been found that for a moderately stable aeroplane the hypothesis of a sharp-edged gust gives a gust velocity within 10 per cent. of the truth, provided the time taken to reach maximum acceleration is less than a certain amount, depending on the mass and dimensions of the aeroplane. There is a corresponding upper limit to the distance travelled by the aeroplane in this time, which amounts to 44 ft. for the Bristol Fighter and 80 ft. for the Gloster "Gorcock." The accuracy of estimating a given gust on the sharp-edged hypothesis is independent of the velocity of the aeroplane. The acceleration due to a gust which begins by increasing slowly and then rises very rapidly may exceed that given by the sharp-edged hypothesis for the same maximum gust velocity. The simplest hypothesis for a linear gust, which neglects the length of the aeroplane and any pitching motion, greatly under-estimates the acceleration due to a comparatively slowly-rising gust, owing to the increased incidence resulting from the difference in gust strength at wings and tail. Increased wing loading decreases the acceleration due to a sharp gust, but increases it in a slow gust, unless the aeroplane is unstable.

"Buffeting"

Sir Richard Glazebrook is somewhat reticent on the subject of tail "buffeting" (a slightly unfortunate word, selected by those who looked into the causes of the Meopham air accident, now used by British aerodynamicists to denote an effect, whereas to the ordinary individual it clearly indicates a cause), and confines himself to stating that a lengthy investigation has been carried out by the German D.V.L. In the supplement to the report a rather more detailed reference is made to the final D.V.L. report on the investigation of "buffeting," and it is stated that in the main the wind tunnel results confirm the N.P.L. wind tunnel results. It is, however, admitted that the German report states that although it is conceivable that the aeroplane which crashed at Meopham was a victim of buffeting, there appears to be a possibility that the accident was primarily connected with the wings, or that wing fracture occurred at the same time as the collapse of the tail, since at a speed of about 215 km./h. the wing is stressed up to the limit if it attains the stalling angle of incidence.

The remedy for "buffeting" suggested in the supplement is to place the tailplane as low as possible, to stiffen the fuselage and tail, and to avoid anything which may cause premature breakdown of the flow over the central part of the wing. It is pointed out that the features which cause premature breakdown are precisely those that promote high interference drag.

Flutter

Concerning wing-aileron flutter, Sir Richard Glazebrook states that further data on the subject will be accumulated as opportunity occurs, but already enough is known to render it unlikely that wing or tail flutter will occur in future design if use is made of the existing information.

The problem of airscrew flutter is, apparently, less well understood, but technical papers have been contributed, and it is hoped that the theory may be capable of further development for application to the airscrew problem.

Interference

On the subject of interference between parts of an aeroplane, Sir Richard Glazebrook makes the welcome admission that the researches have reached a stage at which little further advance on general lines can be made without including the effect of the airscrew. A survey has indicated that there are certain general principles which will be useful in helping designers to decide whether a proposed combination of body and wings or wing and nacelle is likely to prove good or bad aerodynamically. It is found that divergent regions in which the air has to expand if it is to follow the surfaces without breaking away are likely to lead to high interference drag, particularly if one of the surfaces concerned is the upper surface of a wing.

"Spoiling drag" is a novel expression used by Sir Richard. It is, apparently, an additional drag which is attributed mainly to the rotary motion of the airscrew slipstream acting upon the body. As a result of researches made by Mr. C. N. H. Lock, Sir Richard Glazebrook states that this has been "isolated," but whether it is a bacillus or a microbe is not divulged. Curious to know more about this new aerodynamical disease, we turn to the supplement of the report, and there find, on page 45, that "A careful analysis of the airscrew-body interference has revealed the existence of what has been called 'spoiling drag' due to the slipstream rotation. The possibility of reducing such rotation by means of stationary radial vanes has been examined by wind-tunnel tests of small-scale models. Both pusher and tractor combinations have been tried (one almost blushes at the official use of the expression pusher without inverted commas), and it was found that suitable vanes reduced appreciably the slipstream rotation. In spite of the additional drag of the vanes, the overall performance has been appreciably improved, the largest increase of net thrust at maximum efficiency so far achieved being 3.5 per cent. for the tractor position and 10 per cent. for one of the pusher positions."

Seaplanes

"Seaplane development," Sir Richard Glazebrook states, "is at present in a very interesting stage. Seaplanes are growing rapidly in size and new problems are continuously arising. The recently constructed Short 'Kent' weighs about 15 tons with full load, while considerably larger craft are contemplated. In addition a military flying-boat of about double this weight has been completed and will be subjected to extensive trials. There has been, therefore, a very rapid change of scale and this has drawn attention to the great importance of pursuing vigorously side by side both flying experiments at Felixstowe and research experiments elsewhere."

In the supplement to the report is found the interesting information that measurements of pressures on hull bottoms during take-off and alighting disclosed hydrodynamic pressures of 10 lb./sq. in. on the Supermarine "Southampton," although they were not sustained longer than 0.04 sec. A pressure greater than 8 lb./sq. in. was sustained for as much as 0.4 sec. on one occasion during a "landing" in a slight swell. Pressures of the order of 20 lb./sq. in. were indicated on the Short "Singapore II," but these only lasted for about 0.02 sec. It is mentioned that the recording instruments first used were unsuitable, as they had considerable inertia of moving parts. It is pointed out that as high pressures on certain parts of a hull may last for not more than 1/50th to 1/100th of a second, a pressure recorder with a period not longer than 1/500th of a second is necessary for accurate measurements. An instrument of German design has been found to be the most satisfactory of those tested, and several have now been assembled and are in use. As an example of the problems which have arisen during the work it is mentioned that the effect of the elasticity of the plating on the pressures on the hull appear to be appreciable.

Engines

Taking as a high-water mark the performance of the Rolls-Royce "R" engines in the Schneider Trophy machines, Sir Richard Glazebrook states that although these engines were not capable of continuous operation at full power for long periods, it will probably be safe to assume that it will not be long before reliable engines weighing not more than 1.5 lb./h.p. are in common use. He asks the question what importance attaches to efforts to make even lighter engines, and answers himself by the reply: "The same degree of importance as efforts to make any part of an aircraft lighter without diminishing safety and reliability." As fuel consumption and power required are both directly proportional to the drag of the aircraft, a reduction of drag is of equal, and, indeed, of greater importance than a reduction of engine weight and fuel consumption. "Ten years ago," Sir Richard writes, "there seemed little likelihood of effecting a reduction in drag at all comparable with possible reductions in the weight of engines." There is now, he considers, a distinct possibility that the position has changed. Much remains to be done in the way of detailed improvements, but the petrol engine is nearing the limits of its possibilities. Assuming the reliable petrol engine weighing 1.5 lb./h.p. and with a consumption of 0.5 lb./b.h.p./hr., he considers that there is greater probability of decreasing the aeroplane drag by 20 per cent. than of reducing weight and consumption by the same amount.

Fuel economy is being hindered by the difficulty of correct distribution in multi-cylinder engines, and by the absence of a satisfactory system for automatically adjusting the fuel-air mixture according to operating conditions. Sir Richard expresses the opinion that it is possible that in the end the correct-mixture problem may be settled by dispensing with carburettors and substituting a system for injecting controlled quantities of fuel into the inlet pipes of each cylinder.

In view of the recent establishment of a world's altitude height record with the Vickers "Vista" fitted with Bristol supercharged Pegasus engine, the following passage from Sir Richard Glazebrook's report is interesting: "We have had a general discussion on the design of aeroplanes to reach such heights (50,000 ft.), and we hope that it may be possible for the Air Ministry to contemplate seriously the construction of an experimental machine in the near future. The desire to reach 50,000 ft. should not be regarded merely as an amusing extravagance; we feel confident that a successful attempt would lead to a general increase of scientific and technical knowledge which would amply justify the expense."

On the subject of compression-ignition engines, Sir Richard Glazebrook states that the engine sub-committee has recently reviewed all the available experimental results, and have come to the conclusion that the development of the two-stroke compression-ignition engine holds out the greatest possibilities of ultimate success. The Director of Research, Air Ministry, has arranged for the construction of a new experimental two-stroke unit embodying the features which past experience has shown to be desirable. The new unit will be installed at the works of Ricardo & Co. for further investigation.

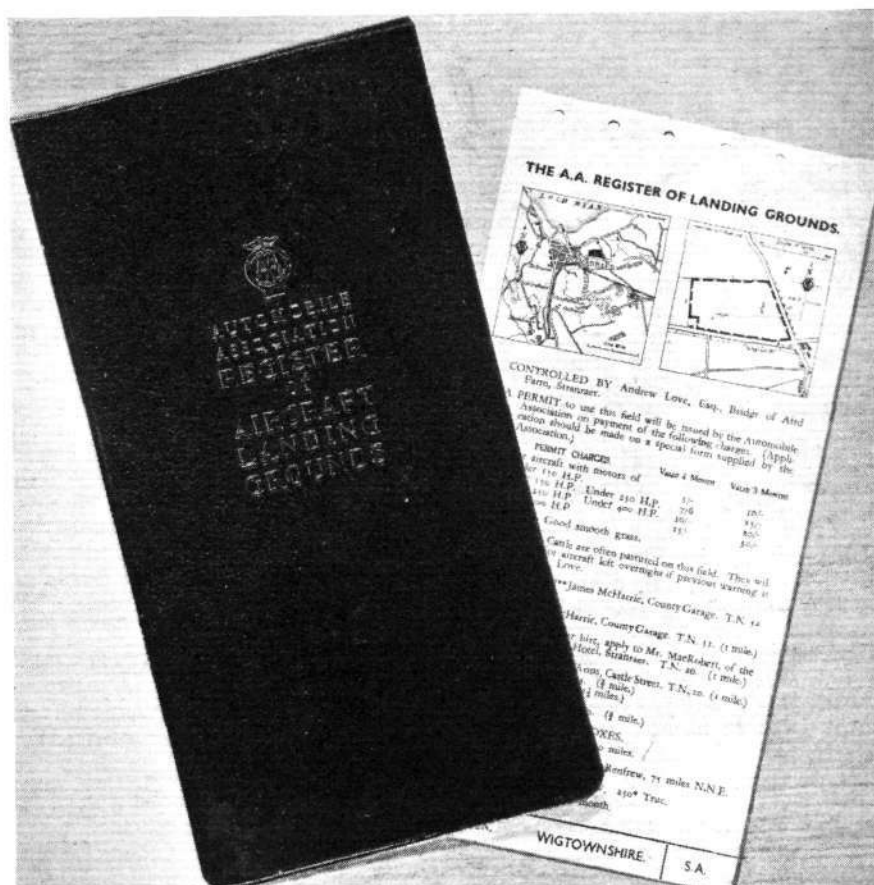
While on the subject of compression-ignition engines, it is worth recording a reference in the supplement to the report to doped oil fuel. Mr. Ricardo discovered several years ago that the addition to the fuel oil of a small quantity of amyl nitrite gave improved running. Sqd. Ldr. Helmore has now been making some laboratory tests which indicated ethyl nitrate as being even more effective, and tests in compression-ignition engines have resulted in Sqd. Ldr. Helmore reporting that a considerable improvement in performance of even the highest grades of fuel oil can be made by the addition of a small percentage of ethyl nitrate. Inferior oils may in this manner be rendered not merely equal, but superior to high-grade undoped oils. The improvement is most marked in engines of the directed spray type.

Research at the Universities

The report indicates that a far greater amount of research work is done at the Universities than is generally known. We have only room here to give the names of universities at which research is carried out. They are: Bristol; Cambridge; Imperial College, South Kensington; Glasgow; Victoria University, Manchester; Oxford.

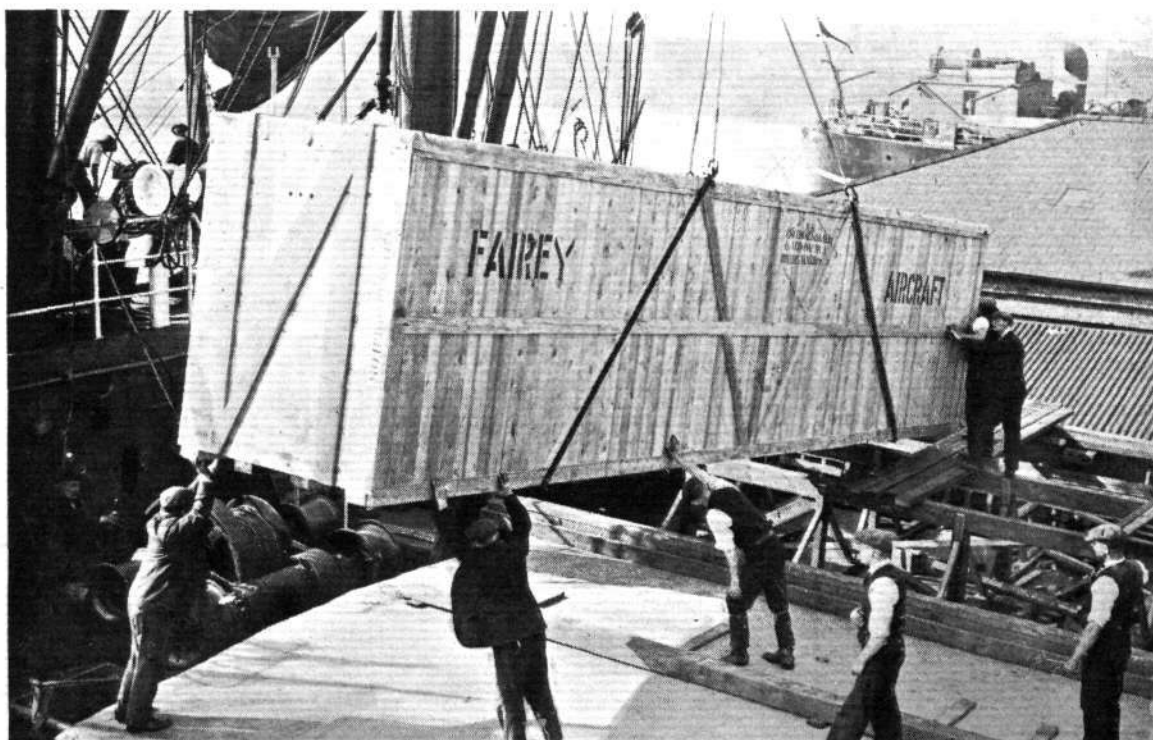
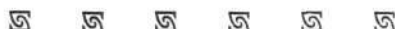
THE A.A. REGISTER OF LANDING GROUNDS

THE Aviation Department of the A.A., formed, and so efficiently built up by Mr. Ivor McClure, has added yet another to the numerous ways in which it has been of incalculable benefit to civil aviation in England, by publishing the A.A. Register of Landing Grounds. This register is a list of temporary landing grounds situated for the most part where permanent aerodromes have not yet been established, and which are in many cases, though suitable for aircraft, not licensed by the Air Ministry. In order that the list should be as reliable as possible, the A.A. has arranged that all the grounds listed should be inspected at frequent intervals. Notwithstanding this, however, the Association naturally cannot accept any responsibility of any kind whatsoever for damages which may arise when pilots make use of these grounds. The particulars of each ground are given on a standard form of schedule, which is bound in a loose leaf folder, thus allowing the addition or subtraction of the details of any particular ground. The grounds selected have in all cases been used by aircraft, and their inclusion in the register is done with the full cognizance—one might even say connivance in most cases—of their respective owners. Landowners have responded to the requests for permission for aircraft to use these grounds in a wonderfully whole-hearted manner. Naturally, some have been compelled to impose certain restrictions, while others make a small charge for the use of their ground, and in all cases these particulars are given on the schedules. Where a fee is charged which cannot conveniently be collected on the spot, the A.A. has instituted a scheme whereby pilots will be permitted to use these grounds against previous payment to the Association. Only members of the A.A.



This shows how handy the A.A. Register is. (FLIGHT Photo.)

other than light car and motor cycle members are entitled to subscribe to the register, the cost of which for twelve months is the exceedingly small sum of 30s. The schedule of each ground is headed by two small maps, one of the surrounding district and one large-scale one of the ground itself. Below these are tabulated all the information likely to be of use to pilots, including the facilities of every kind to be found there and the distance the landing ground is from the nearest aerodrome.



BRITISH AIRCRAFT FOR SOUTH AMERICA: The last of a batch of Fairey "Gordons" (Armstrong Siddeley "Panther") being embarked and completing an order received from South America.

Book Reviews

"The Two-Cycle Engine." By C. F. Caunter. (Sir Isaac Pitman & Sons, Ltd.) Obtainable from FLIGHT Office. Price 15s. 6d., post free.

THE chief fault from which the two-cycle engine is suffering to-day is neglect and lack of development." This is rather like saying that the illness from which a patient is suffering is lack of medical attendance, but neglect and lack of development is the *leitmotif* in Caunter's new book, and the author may be forgiven for rather mixing up malady and cure in the preface. Neglect and lack of development is not the *fault* of the two-stroke, but its *misfortune*. Mr. Caunter is by no means a beginner at the subject of engines, and already has to his credit the little book entitled "Light Aero Engines," also published by Pitmans. In the present volume he has attempted something a good deal more ambitious, in that he has set himself the task of collecting all the material available (it is scanty enough in all conscience) relating to the two-cycle engine in all its forms, as well as giving a few words of advice on design. Mr. Caunter is the apostle of the two-cycle, but he has not permitted his enthusiasm to blind him to the drawbacks inherent to the two-stroke.

If any potential purchaser of the book is in doubt whether or not to spend the 15s. net which is the price, let him put his mind at rest at once. The book is well worth the money to anyone seriously interested in the subject of two-stroke engines. The fact that no less an authority than Sir Dugald Clerk, K.B.E., F.R.S., D.Sc., has read through the proofs and written a foreword to the book is in itself a guarantee that it is worthy of inclusion in the library of the serious student of internal combustion engines. And when one finds that Sir Dugald identifies himself so closely with the views expressed, these views cannot but receive added weight. By a curious coincidence, we publish elsewhere in this issue of FLIGHT a review of the annual report of the Aeronautical Research Committee, in which Sir Richard Glazebrook expresses the opinion that the greatest possibilities of compression-ignition development lie with the two-cycle engine. In his foreword to Caunter's book Sir Dugald Clerk says: "I agree that the two-cycle engine is worthy of great attention, and the best type will be in the form of a heavy-oil engine of the compression-ignition type." Sir Dugald is probably not there referring specifically to the aero engine, but the general principles are the same whatever the purpose for which an engine is designed.

Mr. Caunter deals with every aspect of two-cycle engine operation, and does not confine himself to any one class, the aero engine, the cycle engine, the automobile engine and the marine engine all coming under his scrutiny.

The book begins with a brief historical outline, and then follows a chapter on the commercialisation of the two-stroke. The principle of operation is dealt with simply and clearly in the next chapter, and in the following section the classification of two-strokes gives a good picture of the main sub-types into which the two-cycle engine can be divided. The chapters on design considerations, port design and mechanical design and construction should be of value not only to the student but to the designer as well. Readers of FLIGHT will probably be most interested in the last chapter, which deals with two-cycle aero engines, ancient and modern. Altogether the book is one which can be recommended, and which is likely to remain the standard work on the subject for many years to come.

"Great Exploits in the Air." By F. V. Monk & H. T. Winter. (Blackie & Son, Ltd.) Obtainable from FLIGHT Office. Price 4s., post free.

WHATEVER interest the critic finds in the large quantity of juvenile literature now appearing, with the romantic aspect of aviation as its subject, must be contained in the authors' treatment and their technical accuracy. The stories themselves, when they belong to history, are not new. They are repeated again and again in nearly every popular aviation work that is published.

Very rarely does the author attempt to obtain a new sidelight on each adventure that he re-tells. The technical accuracy of these popular authors remains the most important concern for the reviewer, because their books are often the first introduction of the subject of aviation to their juvenile readers.

From this angle "Great Exploits in the Air," written by Mr. F. V. Monk and Mr. H. T. Winter, is a good book, chiefly because the authors have wisely consulted authoritative volumes and, incidentally, handsomely acknowledged this. The exploits they have selected for re-writing have been written to death already—with a few exceptions. Their chapter on the exploration of the upper air is topical.

The great exploits described are several historic war deeds in the air, parachute escapes of an exceptional character which qualified the airmen involved for membership of the Caterpillar Club, the Trans-Pacific flight of the "Southern Cross" led by Kingsford Smith, and the technical developments which culminated in the recent Schneider machines and their speed performances. Another chapter describes a normal passage of an Imperial Airways liner across the Channel, which is the sort of information worth passing on to boys, although they will hardly accept it as a "great exploit." The reviewer's concluding opinion is that the book is also well written. C. D.



THE "MULTI PRO": This very pretty machine is the work of H. Pander & Zonen, of The Hague, Holland. Like all Pander machines it shows exceptional skill in the use of wood, particularly in the application of plywood. The machine is a side-by-side two-seater, and the engine is a Pobjoy "R."

The Industry

AIRCRAFT CABIN FURNISHING

WITH the inevitable change in touring aeroplane design from the open cockpit to the closed cabin, the furnishing expert is now in demand. Naturally, the aerial tourist, whether pilot-owner or privileged passenger, is not satisfied with the rough interior finish common until a few years ago. They rightly expect the interior of a cabin to approach or equal the interior of a good saloon car.

It is sometimes the justified complaint of the furnishing expert, called upon to employ his expert taste on aircraft, that aircraft constructors inconsiderately leave the question of interior decorations too late for his convenience. They are inclined towards the attitude that all the interior decorator has to do is to "cover things up," with, of course, an appropriate, artistic and comfortable effect.

Consequently, when the decorator is called in to commence work he finds many unnecessary arrangements in the cabin that cause difficulties in achieving the desirable scheme. When, for instance, control cables are taken through the cabin these must be covered in (with due allowance for inspection), which all means decreasing the spaciousness of the interior.

A conscientious decorator loves to spread his magic over a cabin so that in its final state it is as unlike an aeroplane interior as possible. But this he can often only achieve if the aircraft designer co-operates with him long before the design of the fuselage details are finished. In the early stages of design he can often suggest reasonable minor readjustments that will greatly assist him in obtaining the decorative scheme. But when the aircraft constructor calls him in at the last moment and unnerves his professional calm by saying "Here is an aeroplane; make the cabin as beautiful and spacious as you can, but don't move or alter anything," he often discovers a state of affairs hardly fair as a basis for his work.

Elektron Chairs

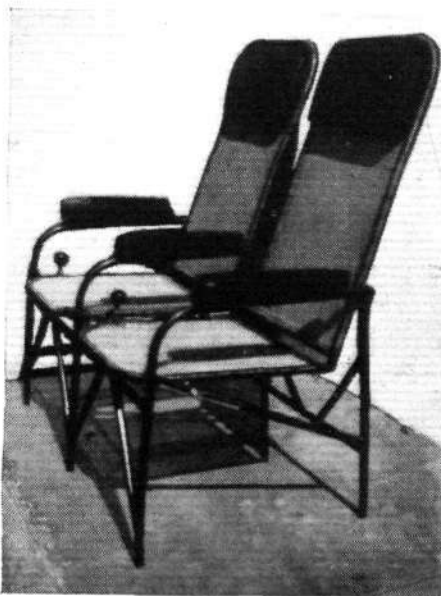
Amongst the notable improvements in recent interior design are the chairs, tables and other furniture, and in this connection a comparatively new development is the use of Elektron tubing, bar and sheeting on account of its extraordinary lightness combined with essential strength and fireproofness.

A company who has specialised in the design and manufacture of aircraft furniture made with Elektron is L. A. Rumbold & Co., successors to Boyd-Carpenter & Co., Ltd. Their works are at Kingsgate Place, Kilburn, N.W.6. They have supplied Elektron chairs for the eight Armstrong-Whitworth "Atalanta" monoplanes operated by Imperial Airways, the Blackburn commercial monoplanes, the Saunders-Roe "Saro Clouds," several de Havilland types, the later Airspeed

"Ferry," the "Monospar" and several other types of aircraft.

The Elektron used by this company is supplied by James Booth & Co., of Birmingham, who are the sole producers of this metal in this country. Elektron comprises 95 per cent. magnesium and 5 per cent. silicon manganese and zinc. The chair and other furniture frames made of Elektron are welded now as a general practice, although this practice has only been achieved after great difficulties. Rumbold & Co. had to experiment with the welding process for a considerable time. The chief difficulty was that of obtaining the right flux. With several sorts of fluxes tried corrosion set in fiercely and very quickly, and the metal was burnt up. The correct heat-treatment had to be experimented for. All the tools must be dry, clean and of a certain temperature for the successful application of the welding process.

The Elektron metal used is the hard kind known as AZM, the tensile strength of which is 12 to 14 tons per sq. in., and shear strength 10 tons per sq. in. The gauges of the Elektron tubing employed are 14, 16 and 18, and it is estimated that the average weight saved over the ordinary cane chairs varies between 40 and 60 per cent. An Elektron chair frame can be made to weigh as little as 2½ lb. The "Atalanta" type, for instance, weighs about 5½ lb., that is, in its completely finished state, with the frame covered and padded where necessary. Double Elektron chairs are also installed in these aircraft, which weigh about 10-11 lb. The entirely covered Blackburn monoplane chair, illustrated above, weighs 14 lb. As the reader will notice, the 3-in. wide safety belt and footrest for the passenger behind are included.



"Double" type adjustable Elektron chairs fitted in Armstrong-Whitworth "Atalanta" monoplanes and supplied by L. A. Rumbold & Co. Weight of this type is about 10-11 lb.



Elektron chair as fitted in the latest Blackburn monoplane. It weighs completely furnished as seen, 14 lb.

Small pieces of Elektron bar are usually fashioned to slot in the legs of the chair to form footpieces, and Elektron is again used when angle brackets are needed in the frame. To prevent oxidation the frames are treated in chromating baths and are usually finished off with enamel. Finishing or plating is still being experimented with, particularly chromium plating. So far, black enamel seems the most successful.

The Elektron chair as produced for aircraft has to pass a test in belt-strain of 1,100 lb. There are adjustable types and non-adjustable types. The cost of these chairs compares very favourably with the cost of other aircraft chairs, quantity orders being the chief deciding factor. A completely finished Elektron chair, fitted with the necessary adjustments for the safety-belt, can be sold for a price round about £6.

Among the present contracts being carried out by Rumbold & Co. is one to equip the fleet of new de Havilland 6-seater aircraft ordered by Mr. Hillman, of Hillman Airways. The company does the complete interior decorating of aircraft as well as specialising in suitable furniture.

CONFERENCE OF BENZOLE PRODUCERS

SIR DAVID MILNE-WATSON, president of The National Benzole Association, was elected president of The International Conference of Benzole Producers at their fifth plenary meeting which was held in Brussels on September 19, and at which Great Britain, France, Germany, Poland, The Netherlands, Saare, Spain, Belgium and Czechoslovakia were represented. Sir David Milne-Watson succeeded M. H. Laurain, president of the French Association of Benzole Producers and president-founder of the International Conference.

"AT THE SIGN OF THE OCTOGON"

THAT is the title of the latest illustrated booklet issued by the M.G. Car Co., Ltd., of Abingdon-on-Thames. We are given the entertaining history of the M.G. Sports Cars, which helps to clear up the wrong impressions that so many people share as to the identity of the company. The M.G. Co. is now one of the largest leading manufacturers of sports cars, and their productions are exclusively M.G. design, and not to be confused with the productions of any of the other companies controlled by Sir William R. Morris, Bart. An excellent illustrated description of the works at Abingdon are the next chief contents of the booklet, written in the form of a works tour compéred by the Managing Director, Mr. Cecil Kimber. The new J.2 1933 Midget is, incidentally, a motor-car which should appeal to the younger flying fraternity more than most. Its acceleration is admirable, and with its guaranteed top speed of 80 m.p.h. it is obvious that its performance must be all which the most dashing land-pilot can require. As a tender to an aircraft it would be hard to imagine anything more pleasant, though we feel that this remark ought to be qualified by the proviso that its attraction is probably greater for the young than for the more mature who perhaps think even more about bodily comfort than about performance. To get the amazing acceleration and speed that M.G.'s do from an 847 c.c. engine, the body weight and size

naturally have to be cut to the minimum, and although the new Midget is quite comfortable in most respects, it was the sports appeal which was kept in front when the design staff were let loose on it. High averages are its *forte*, and during a recent run we were able to do 40 miles to the hour with ease. In talking of the car we cannot close without mention of the gear box. This is a perfect dream to handle, and the third speed, together with the ease with which it can be engaged, make driving the car a matter of the greatest pleasure. It seems a pity that the luggage accommodation is not a little more ample, but then one can hardly expect lavishness for the price, together with such a wonderful performance.

HENLYS SCHEME FOR OLYMPIA

PRIVATE owners will appreciate the arrangements in their interests that are being made by Henlys, Ltd., in connection with the Olympia Motor Show which takes place from October 13 to October 22. There will be a service direct from Heston to Olympia for those who arrive by air, Henlys, Ltd., taking them by car to and fro free of all cost to them. Mr. B. S. Allen, aviation manager of Henlys, Ltd., will be on the Swallow Stand to discuss aircraft and cars.

PARACHUTES AND THE SAILPLANE PILOT

DESIROUS of helping the gliding movement and realising that

parachutes are an essential accessory to sailplanes, Selfridge & Co. are offering to supply a second-hand Irvin parachute at a special price to any well-known sailplane pilot.

DUNLOP FLYING MANAGER'S RETURN

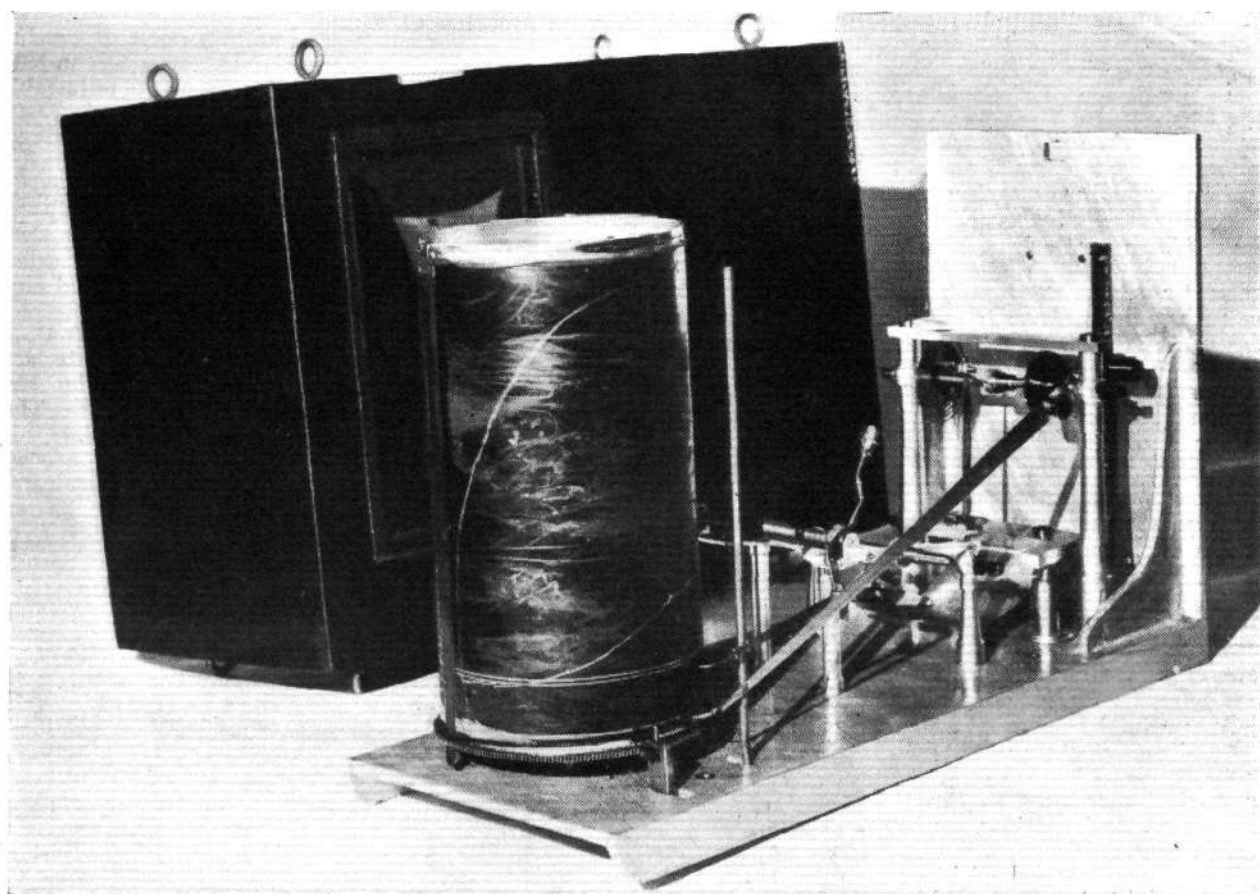
AFTER covering 4,750 miles in five weeks Dunlop's flying traveller, Capt. H. S. Robertson, manager of their Aerial Export Department, has returned to England. He has visited fourteen countries, including Finland, where a lady reporter awaited him with a bouquet of roses!

In addition to doing business in aeroplane wheels and tyres, Capt. Robertson has been demonstrating the Dunlop aero brake. "My trip has proved," he reported, "that travelling by air—especially for a commercial traveller selling aeronautical supplies—is infinitely the best way of doing business."

The only occasion on which Capt. Robertson failed to keep to his scheduled time-table was when he arrived back at Croydon twenty minutes before he was due.

COPENHAGEN

ONE of the first orders placed at the British Industries Exhibition in Copenhagen was secured by C. C. Wakefield & Co. for their Castrol Oil. The value of the order is £1,250, and the consignment is to be delivered to one of the largest firms in Denmark.



THE PROOF OF THE PUDDING : The official barograph which recorded the altitude of 13,404 metres (43,976 ft.) reached by Mr. C. F. Uwins on a Vickers "Vespa" fitted with Bristol "Pegasus" engine on September 16. The chart has now been submitted by the Royal Aero Club to the F.A.I. for homologation.

THE ROYAL AIR FORCE

London Gazette, September 30, 1932

General Duties Branch

The following are granted permanent commissions as Pilot Officers with effect from Sept. 19, and with seny. of Sept. 19, 1931:—J. B. Altham, C. H. B. Bullock, J. L. H. Fletcher, J. M. D. Ker. Lt. E. B. Carnduff, R.N., is re-attached to R.A.F. as Flight Lieut. with effect from Sept. 19, and with seny. of Jan. 1; Pilot Officer on probation L. F. J. Taylor is confirmed in rank. (Sept. 11). The following Pilot Officers are promoted to rank of Flying Officer:—G. Hinckley, I. V. Hue-Williams, J. M. Warfield, R. G. Whitehead (Aug. 29); E. J. N. Heaven (Sept. 1).

Flying Officer L. W. V. Jennens takes rank and precedence as if his appointment as Flying Officer bore date Sept. 27, 1931, reduction takes effect from Sept. 5; Sqdn.-Ldr. A. Rowan is restored to full pay from half-pay (Sept. 19); Flt. Lt. C. R. Smythe is restored to full pay from half-pay (Sept. 19); Sqdn.-Ldr. E. J. Cuckney, D.S.C., is placed on half-pay list, Scale A, from Sept. 21 to Sept. 30 inclusive; Flt.-Lt. W. G. Abrams is placed on half-pay list, Scale A, from Aug. 31 to Sept. 18 inclusive (substituted for *Gazette*, Sept. 9); Lt.-Cdr. J. I. Robertson, R.N., Flt.-Lt., R.A.F., ceases to be attached to R.A.F. on return to naval duty (Sept. 20); Flt.-Lt. F. L. Kingham is placed on retired list (Sept. 28); *Gazette* March 22 concerning Flying Officer R. C. Hancock is cancelled.

Stores Branch

Sqdn.-Ldr. W. G. MacD. Nicholl is restored to full pay from half pay (Aug. 8); Sqdn.-Ldr. T. Bell, M.M., is placed on retired list (Sept. 25).

Accountant Branch

Sqdn.-Ldr. J. Sullivan is placed on half-pay list, Scale A, from Sept. 18 to Sept. 30 inclusive; Flt.-Lt. A. J. Moore is placed on half-pay list, Scale A, from Sept. 27 to Oct. 3 inclusive.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Group Captain A. ap Ellis, C.B.E., to No. 4 Flying Training Sch., Abu Sueir, 1.9.32, to Command vice G/Capt. A. D. Cunningham, C.B.E.

Wing Commander P. B. Hunter to R.A.F. Base, Singapore, 23.9.32, for Engineer duties vice S/Ldr. W. E. Reason.

Squadron Leaders: J. H. O. Jones to R.A.F. Depot, Uxbridge, 19.9.32, whilst attending Sen. Officers' Tactical Course, Portsmouth. V. R. Scriven, A.F.C. to R.A.F. Depot, Uxbridge, 19.9.32, whilst attending Sen. Officers' Tactical Course, Portsmouth. A. Rowan to Home Aircraft Depot, Henlow, 19.9.32, for Administrative duties vice Sqd. Ldr. H. A. Smith. A. F. Somerset-Leeke, O.B.E., to Home Aircraft Depot, Henlow, 23.9.32, for Engineer duties vice Sqd. Ldr. C. W. Hill.

Flight Lieutenants: N. S. Allinson to Station H.Q., Boscombe Down, 18.9.32. C. R. Smythe to R.A.F. Base, Calshot, 19.9.32. W. G. Abrams to No. 201 (F.B.) Sqdn., Calshot, 19.9.32. G. A. R. Muschamp to H.M.S. *Hermes*, 23.9.32. A. W. B. McDonald to R.A.F. Base, Singapore, 23.9.32. E. L. J. Rowe to No. 204 (F.B.) Sqdn., Mount Batten, 19.9.32.

Flying Officers: D. B. McGill to No. 464 (F.T.B.) Flight, 14.9.32. L. M. Woolveridge to No. 99 (B) Sqdn., Upper Heyford, 19.9.32. R. A. McMurtrie to No. 442 (F.S.R.) Flight, 14.9.32.

Pilot Officers: D. W. Baird to No. 16 (A.C.) Sqdn., Old Sarum, 18.9.32. W. J. H. Ekins to No. 41 (F) Sqdn., Northolt, 18.9.32. K. F. Ferguson to No. 25 (F) Sqdn., Hawkinge, 18.9.32. V. G. Govett to No. 33 (B) Sqdn., Bicester, 18.9.32. R. W. Hay to No. 13 (A.C.) Sqdn., Netheravon, 18.9.32. W. A. W. Jameson to No. 1 (F) Sqdn., Tangmere, 18.9.32. P. R. J. Leborgne to No. 2 (A.C.) Sqdn., Manston, 18.9.32. C. E. S. Lockett to No. 2 (A.C.) Sqdn., Manston, 18.9.32. J. K. Quill to No. 17 (F) Sqdn., Upavon, 18.9.32. Q. W. A. Ross to No. 17 (F) Sqdn., Upavon, 18.9.32. J. C. Sisson to No. 41 (F) Sqdn., Northolt, 18.9.32. D. M. Somerville to No. 4 (A.C.) Sqdn., S. Farnborough, 18.9.32. F. W. L. Wild to No. 40 (B) Sqdn., Upper Heyford, 18.9.32. L. M. Middleton to No. 43 (F) Sqdn., Tangmere, 23.7.32, on appointment to a Permanent Commn. from the R.A.F. College. J. B. Altham, J. L. H. Fletcher and J. M. D. Ker to No. 5 Flying Training School, Sealand, 19.9.32, on appointment to Permanent Commissions. R. K. Brougham to No. 36 (T.B.) Sqdn., Singapore, 23.9.32. D. E. Forman to No. 36 (T.B.) Sqdn., Singapore, 23.9.32. G. R. Murphy to No. 36 (T.B.) Sqdn., Singapore, 23.9.32. R. Cleland to No. 204 (F.B.) Sqdn., Mount Batten, 19.9.32. H. F. Boss-Walker to No. 57 (B) Sqdn., Netheravon, 17.9.32. D. A. Gibson to No. 100 (B) Sqdn., Donibristle, 17.9.32. J. W. B. Judge to No. 57 (B) Sqdn., Netheravon, 17.9.32. A. G. F. Stewart to No. 32 (F) Sqdn., Kenley, 17.9.32. G. E. Strangman to No. 23 (F) Sqdn., Kenley, 17.9.32.

Acting Pilot Officers: R. S. Howe to No. 32 (F) Sqdn., Kenley, 18.9.32. C. F. M. Rambaut to No. 101 (B) Sqdn., Andover, 18.9.32. The under-

Memorandum

The permission granted to Sec. Lt. A. B. MacDonald to retain his rank is withdrawn on his conviction by the Civil Power (Feb. 1).

Erratum

In *Gazette*, Sept. 16, for Walter Brown Fleming read William Brown Fleming; for John Stirling McLean read John Sterling McLean.

ROYAL AIR FORCE RESERVE RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The following Pilot Officers are promoted to rank of Flying Officer:—K. S. Alderton, A. D. Baxter, W. W. Briscoe, R. E. G. Brittain, J. R. M. Brunton, C. F. A. Cockburn, J. K. Day, T. G. Figgis, J. G. Giddins, A. L. G. Hatrick, F. H. Hawes, N. M. Hone, W. F. Jennings, N. N. McKinnon, D. M. Robertson, H. F. Ruston, E. W. Spilman, F. O. Thornton, V. B. Twiss, P. E. Underwood, E. P. Young (Sept. 16); D. N. Grice, J. E. Robins (Sept. 17); J. F. Truscott (Sept. 18); the Hon. John Grimston, J. G. Macintyre (Sept. 19); C. H. Lewis, H. F. McCullagh (Sept. 23); W. R. Rumbold (Sept. 24).

Flying Officer G. J. C. Mahoney is transferred from Class A to Class C (April 24).

Medical Branch

Flight Lieutenant R. J. K. Chattey relinquishes his commn. on completion of service (Sept. 28).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—The following Pilot Officers are promoted to the rank of Flying Officer:—G. A. Read (Sept. 17); I. D. Shields (Sept. 23).

mentioned Acting Pilot Officers are posted to No. 5 Flying Training School, Sealand, on 17.9.32 for flying training:—P. B. H. Butler, W. G. Devas, W. B. Fleming, D. W. H. Gardner, W. H. Gerrard, E. P. P. Gibbs, G. J. Grindell, H. V. Kennedy, P. C. Lawrence, J. S. Leslie, J. S. McLean, J. C. Mole, G. A. M. Pryde, D. S. Radford, O. W. W. Reed, J. R. L. Rumsey, P. H. P. Simonds, E. L. A. Walter, and C. H. T. Warner.

Stores Branch

Wing Commander R. W. Thomas, O.B.E. to R.A.F. Depot, Uxbridge, 18.9.32, whilst attending Commissariat Course.

Squadron Leader A. G. Knight, M.B.E., to R.A.F. Base, Singapore, 23.9.32, for Stores duties vice Sqd. Ldr. T. G. Skeats.

Flight Lieutenants: R. V. J. S. Hogan to No. 3 Stores Depot, Milton, 19.9.32. A. G. Stratford-Tuke to R.A.F. Depot, Uxbridge, 18.9.32.

Flying Officers: G. C. Allen to No. 501 (City of Bristol) (B) Sqdn., Filton, 19.9.32. F. C. Read to R.A.F. Depot, Uxbridge, 18.9.32. A. W. Rule to No. 45 (B) Sqdn., Helwan, 20.7.32.

Accountant Branch

Squadron Leader E. J. Grout to R.A.F. Base, Singapore, 23.9.32, for duty as Command Accountant vice Sqd. Ldr. C. C. J. Croydon.

Flight Lieutenant J. F. R. Eales-White to R.A.F. Depot, Uxbridge, 23.9.32.

Medical Branch

Squadron Leader T. McClurkin to R.A.F. Depot, Uxbridge, 1.10.32, whilst attending a post-graduate course at the London School of Tropical Medicine and Hygiene.

Flight Lieutenants: J. C. Neely to Station H.Q., Northolt, 28.9.32. (Hon. Sqd. Ldr.) C. A. E. I. Brownlee to R.A.F. Base, Gosport, 12.9.32. D. Loughlin to Home Aircraft Depot, Henlow, 1.10.32. R. Thorpe to R.A.F. Training Base, Leuchars, 12.9.32. J. Hutchieson to Air Armament School, Eastchurch, 20.9.32.

Flight Lieutenant (Medical Quartermaster).—W. Gamblen to R.A.F. Officers' Hospital, Uxbridge, 28.9.32.

Chaplains Branch

Rev. M. H. Edwards, O.B.E., to Station H.Q., Manston, 26.9.32. For duty as Chaplain (Church of England), vice Rev. J. H. P. Still.

NAVAL APPOINTMENT

The following appointment has been made by the Admiralty:—

Lieut.-Commander C. A. R. Gibb (F.O., R.A.F.), reattached to R.A.F. (Sept. 26), and appointed to *Victory* (Oct. 5) for R.A.F. Base, Gosport, for course, and for B.T.S.

Foreign Officers with the R.A.F.

LT. VEGA GRACIA, Mexican Air Force, is being attached to the Royal Air Force from September 15, 1932, for two months, in order to study the organisation of, and work carried out by, Fighter Squadrons. He will be attached to the Central Flying School from September 15, 1932, to October 1, 1932, and to Fighter Squadrons from October 3, 1932, to October 29, 1932. The following officers will proceed to the Central Flying School, Wittering, to undergo the next Flying Instructor's Course, which commences on September 20 and terminates on December 16:—Lt. Vicomte de Spoelberch, Belgian Air Service; and Lt. Rasananda, Siamese Military Air Service.

R.A.F. Air Pilotage Training

THE Air Council have had under consideration the policy regarding training in air pilotage, with a view on the one hand to raising the standard of knowledge in the service, and on the other to eliminating so far as possible

difficulties regarding the passing of junior officers through short courses.

It has been decided, in the first place, that a substantially higher standard of training in air pilotage shall be set in *ab initio* flying courses at the R.A.F. College and flying training schools. To that end, flying instructors under training at the Central Flying School are being given instruction in air pilotage up to the standard indicated in the next paragraph.

Secondly, all flight commanders will be held responsible for continuing the air pilotage training given in *ab initio* flying courses when the pilots join their flights, and will be required to reach a sufficient standard in that subject to enable them to do so. To that end, all permanent and medium service officers who have not already taken an appropriate course will be required to pass a 14 days' course in air pilotage between their fourth and their sixth years of service.

Thirdly, to assist flight commanders in bombing squadrons to carry out the training mentioned in the preceding paragraph, each such squadron will carry, within its existing establishment of flight lieutenants, a flight lieutenant who, before appointment to the squadron, has passed through a three months' course in air pilotage or has qualified up to an equivalent standard.

Officers who have passed the Flying Boat Pilots' Course will be regarded as qualified up to the standard of the three months' Air Pilotage Course; those who have passed the Flying Instructors' Course will be regarded as qualified up to the standard of the 14 days' Air Pilotage Course.

AIR POST STAMPS

By DOUGLAS ARMSTRONG

"Ad Astra"

ONCE again the annual editions of the stamp dealers' catalogues record spectacular rises in the prices of air post stamps, and the compilers declare that the demand during the past year has surpassed anything in their previous experience. There is no gainsaying that the cult gains in popularity and stability as time goes on, nor does there seem to be any immediate prospect of a lull in the activities of the air stamp market.

The most sensational advance in the new "Gibbons" Catalogue is connected with the rarest air mail stamp, being the error of the 24-c. U.S.A. (series 1918) with the vignette printed upside down. This has put on £200 at one fell swoop, and even so, at £700, is still under-valued. If a fine copy of this much-sought-after variety came up for sale to-day, there is little doubt that it would realise nearer £1,000! The situation is the more remarkable when it is recalled that some ten years ago copies were going begging at £150.

Among the Trans-Atlantic air mail stamps of Newfoundland, the historic "Hawker" variety is now quoted at £280 unused, but remains stationary, used, at £200, which is a trifle more than the "flown" covers are actually fetching in the open market. The "De Pinedo" is also somewhat over-valued at £80 used, no price being given for the very elusive unused specimen. The "Miss Columbia" issue also shows no change at £100 unused and £90 used. For the more recent "Do.-X" air mail stamp the current quotation is 55s. unused. In the foreign section the exceedingly scarce variety of the 20-ore "Luftpost" overprint of Sweden (1919) on crown water-marked paper has been moved up from £60 to £100. Numerous other increases have been made throughout the air stamp group, the sole exceptions being found in certain speculative varieties of Mexico.

A Unique Air Post Letter

An object of outstanding interest for air mail collectors was included in a small stamp exhibition organised by Selfridges and held at their famous store last month. It is an envelope sent by the correspondent of the *Daily Express* to his editor in London by the ill-fated "Martinsyde" machine, and is remarkable for the fact that it bears on its face both the "Hawker" and the rare manuscript "Aerial Atlantic Mail" stamps side by side. It is in all probability unique, and now reposes in one of the most important private collections of air post stamps in this country.

Latest from South America

Recent additions to the world's air post stamps include new series from Bolivia and Columbia in substitution for the semi-official issues hitherto provided by the air mail contractors operating the services in those countries. The Bolivian issue comprises seven values from 5 centavos to 1 Boliviano in an emblematic motif reproducing the heads of two Condors from a sculpture of the Aztec period. Colombia's first governmental air mail stamps make a striking series with their pictorial illustrations of the principal products and industries of that wealthy country as interpreted by the German artist Fraulein Dorothea Suffrian. They embrace coffee, cattle, bananas, petroleum, gold and emeralds, the face values of the 14 stamps ranging from 5 centavos to 5 pesos. Like the previous issues of the Scadta concern, they are the product of the State Printing Works at Berlin.

Following the advent of these new stamps, on August 1, 1932, the remainders of the old Scadta series overprinted "Correo Aereo" were destroyed by burning in the vaults of the Bank of the Republic at Bogota.

More "Zepp" Stamps

The latest South American flight of the airship *Graf Zeppelin* was marked by the issue of three special stamps of the Argentine Republic for exclusive use upon the mail brought back to Europe by the giant dirigible. These take the form of the contemporary 5, 18 and 90 centavos values of the regular air stamp series with the addition of the words "Graf Zeppelin 1932" overprinted in three lines of Roman capitals, in red or blue ink respectively, there being issued in all 50,000 copies of the 5 centavos, 75,000 of the 18 c. and 93,300 of the 90 c.

A Model Aerodrome Wanted?

THOSE who have visited the various flying meetings held in and around London by Model Aeroplane Clubs—which meetings are nearly always held in certain open public spaces—cannot fail to have noticed that the spectators (*i.e.*, the general public mainly) present a serious obstacle to the successful flying of the models. Bicycles and dogs frequently cause damage to the models, while the latter cannot, always, be persuaded to refrain from an occasional argument with a spectator! The public, of course, have a perfect right to be where they are, but nevertheless more often than not get completely out of hand when collected round a model flying meeting. A prominent and pioneer model enthusiast suggests to us a solution to this problem. He says: "If the Model Flying Clubs wish to hold successful and useful competitions, they must hold them on a private ground where only personally interested parties should be present. Public flying, in my opinion, should only be of the exhibition variety. The general public do not understand the fine points of most competitions for model aircraft, and only impede the successful running of the contest. It therefore impresses itself on me that the many clubs (at least in and around London) should get together and find a communal ground where competitions and demonstrations of the heavier power driven models could be held. May I venture to suggest that this is where some public-spirited landowner may help? There surely must be a gentleman owning an estate in the environs of London who has a suitable field and who is interested in flying and its progress, who will help in this matter, and it occurs to me that through the medium of your valuable paper we may get acquainted with such a gentleman, who would help model aviation in a practical manner by putting at the Model Flying Clubs' disposal a suitable piece of ground, and thereby fostering not only a healthy sport, but progressive science. Your readers' opinions on this matter would be appreciated."



PUBLICATIONS RECEIVED

- The Death Flight.* By Capt. A. O. Pollard, V.C., M.C., D.C.M. London: Hutchinson & Co., Ltd. Price 7s. 6d. net.
Aeronautical Research Committee Reports and Memoranda: No. 1461. *Design and Test Data for Aircraft Radiators.* By C. Anderson Brown. May, 1932. Price 3s. net.
The Two-cycle Engine. By C. F. Caunter. London: Sir Isaac Pitman & Sons, Ltd. Price 15s. net.
Compression Ignition Engines for Road Vehicles. By the Editor of *The Commercial Motor.* London: Temple Press, Ltd. Price 2s. 6d. net.
Flying Dutchman: The Life of Anthony Fokker. By Anthony H. G. Fokker and Bruce Gould. London: George Routledge & Sons, Ltd. Price 6s. net.
The Air Annual of the British Empire, 1932-33. Edited by Sqdn.-Ldr. C. G. Burge, O.B.E. London and Aldershot: Gale and Polden, Ltd. Price 21s. net.
The Camels are Coming. By W. E. Johns. London: John Hamilton, Ltd. Price 7s. 6d. net.



NEW COMPANY REGISTERED

HOVERDROMES SOUTHERN, LTD., 326, Abbey House, Victoria Street, S.W.1.—Capital, £2,000 in £1 shares. To adopt an agreement with Hoverplane Company, Ltd., for the acquisition of machines and operating apparatus known as "Hoverplanes" and other products of the said company, and to use and exploit any flying machine, aeroplane, hoverplane, glider, etc. Subscribers: R. C. Bayley, Abbey House, Westminster, S.W., engineer; A. H. Pickard, 326, Abbey House, Victoria Street, S.W.1, engineer. First and permanent directors: Maj. R. C. Bayley (managing director) and J. R. S. Whiting (technical advising director).



AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. (The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1930

Published October 6, 1930.

- 15,870. F. MICHAUD. Speed indicating arrangements for aerial moving bodies. (380,084.)

APPLIED FOR IN 1931

Published October 6, 1932.

- 16,597. VICKERS-ARMSTRONGS, LTD., and J. P. WATSON. Anti-aircraft guns. (380,063.)
 18,403. AKT.-GES. C. P. GOERZ OPTISCHE ANSTALT, I. PECHAN, and J. SCHIER. Sighting-telescopes for use with anti-aircraft guns. (380,173.)
 32,492. A. C. RICHARDS and AERO PISTON RING CO., LTD. Piston rings (380,300.)

APPLIED FOR IN 1932

Published October 6, 1932

- 11,058. CIERVA AUTOGIRO CO., LTD. Mounting-structures for aircraft sustaining rotors. (380,390.)